KV-27V10/27V15

RM-Y117 RM-Y121/RM-CM101

KV-29V10C/29V10M/32V15

RM-Y117 RM-Y117 RM-Y121
RM-CM101

SERVICE MANUAL

US Model

KV-27V10 Chassis No. SCC-F84Q-A
KV-27V15 Chassis No. SCC-F84R-A
KV-32V15 Chassis No. SCC-F84S-A

Canadian Model

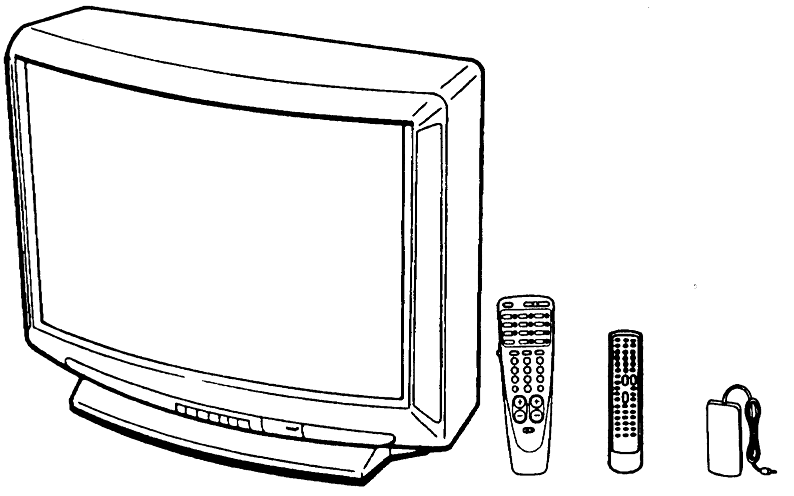
KV-27V10 Chassis No. SCC-F85L-A
KV-27V15 Chassis No. SCC-F85M-A
KV-32V15 Chassis No. SCC-F85N-A

WP Model

KV-29V10C Chassis No. SCC-G49A-A

E Model

KV-29V10M Chassis No. SCC-F89H-A



RM-Y121 RM-Y117 RM-CM101

AA-1 CHASSIS

MODELS OF THE SAME SERIES	
KV-27V10/27V15 KV-29V10C/29V10M/32V15	KV-27S10/27S15/29RS10 KV-29RS15/32S10/32S15
KV-27V55/29V55M	KV-2970RS/2970M/2975M

SPECIFICATIONS

Television system	American TV standards
Channel coverage	VHF: 2-13 UHF: 14-69 CABLE TV: 1-125
Picture tube	Hi-Black™ Trinitron® tube (KV-27V10/27V15/29V10C/29V10M) 27-inch picture measured diagonally 29-inch picture measured diagonally (KV-32V15) 32-inch picture measured diagonally
Antenna	75-ohm external antenna terminal for VHF/UHF

- Continued on next page -

MICROFILM

TRINITRON® COLOR TV

SONY®

Input VIDEO and S VIDEO
S VIDEO IN
Y: 1 Vp-p, 75-ohms unbalanced, sync negative
C: 0.286 Vp-p (Burst signal), 75-ohms
Video : 1 Vp-p, 75-ohms unbalanced, sync negative
Audio : 500 mVrms (100% modulation)
Impedance: 47 kilo-ohms

Output AUDIO OUT :
More than 408 mVrms at the maximum volume setting (variable)
More than 408 mVrms (fix)
Impedances : 5 kilo-ohms
(KV-27S15/29RS15/32S15)

Speaker output 5W×2

Power requirements 120 V AC, 60Hz

Power consumption

Model number	When in use	In standby mode
KV-27V10	165 W	6 W
KV-27V15	170 W	6.5 W
KV-29V10C	160 W	9 W
KV-29V10M	165 W	6 W
KV-32V15	205 W	6.5 W

Dimensions/Weight

	Dimensions (w/h/d)	Weight
KV-27V10	664×572×513 mm (26¼×23⅝×20¼ inches)	42.9 kg (94 lbs)
KV-27V15	664×572×513 mm (26¼×23⅝×20¼ inches)	43 kg (94 lbs 13 oz)
KV-29V10C	664×572×513 mm (26¼×23⅝×20¼ inches)	42.9 kg (94 lbs)
KV-29V10M	664×572×513 mm (26¼×23⅝×20¼ inches)	42.9 kg (94 lbs)
KV-32V15	801×664×603 mm (31⅝×26¼×23¾ inches)	70 kg (154 lbs 2 oz)

Supplied accessories (KV-27V10/29V10C/29V10M)
Remote Commander RM-Y117 (1)
with 2 size AA (R6) batteries
(KV-27V15/32V15)
Remote Commander RM-Y121 (1)
with 1 size AA (R6) battery
RM-CM101

Optional accessories U/V mixer EAC-66
Connecting cable
VMC-810S/820S, VMC-720M,
YC-15V/30V, RK-74A

Design and specifications are subject to change without notice.

(CAUTION)

SHORT CIRCUIT THE ANODE OF THE PICTURE TUBE AND THE ANODE CAP TO THE METAL CHASSIS, CRT SHIELD, OR CARBON PAINTED ON THE CRT, AFTER REMOVING THE ANODE.

WARNING!!

AN ISOLATION TRANSFORMER SHOULD BE USED DURING ANY SERVICE TO AVOID POSSIBLE SHOCK HAZARD, BECAUSE OF LIVE CHASSIS.
THE CHASSIS OF THIS RECEIVER IS DIRECTLY CONNECTED TO THE AC POWER LINE.

SAFETY-RELATED COMPONENT WARNING !!

COMPONENTS IDENTIFIED BY SHADING AND MARK ⚠ ON THE SCHEMATIC DIAGRAMS, EXPLODED VIEWS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY. CIRCUIT ADJUSTMENTS THAT ARE CRITICAL TO SAFE OPERATION ARE IDENTIFIED IN THIS MANUAL. FOLLOW THESE PROCEDURES WHENEVER CRITICAL COMPONENTS ARE REPLACED OR IMPROPER OPERATION IS SUSPECTED.

(ATTENTION)

APRES AVOIR DECONNECTE LE CAP DE L ANODE, COURTCIRCUITER L'ANODE DU TUBE CATHODIQUE ET CELUI DE L'ANODE DU CAP AU CHASSIS METALLIQUE DE L'APPAREIL, OU AU COUCHE DE CARBONE PEINTE SUR LE TUBE CATHODIQUE OU AU BLINDAGE DU TUBE CATHODIQUE.

ATTENTION!!

AFIN D'EVITER TOUT RISQUE D ELECTROCUTION PROVENANT D'UN CHASSIS SOUS TENSION, UN TRANSFORMATEUR D'ISOLEMENT DOIT ETRE UTILISE LORS DE TOUT DEPANNAGE.
LE CHASSIS DE CE RECEPTEUR EST DIRECTEMENT RACCORDE A L ALIMENTATION SECTEUR.

ATTENTION AUX COMPOSANTS RELATIFS ALA SECURITE!!

LES COMPOSANTS IDENTIFIES PAR UNE TRAME ET PAR UNE MAPQUE ⚠ SUR LES SCHEMAS DE PRINCIPE, LES VUES EXPLOSEES ET LES LISTES DE PIECES CONT D'UNE IMPORTANCE CRITIQUE POUR LA SECURITE DU FONCTIONNEMENT. NE LES REMPLACER QUE PAR DES COMPOSANTS SONY DONT LE NUMERO DE PIECE EST INDIQUE DANS LE PRESENT MANUEL OU DANS DES SUPPLEMENTS PUBLIES PAR SONY. LES REGLAGES DE CIRCUIT DONT L'IMPORTANCE EST CRITIQUE POUR LA SECURITE DU FONCTIONNEMENT SONT IDENTIFIES DANS LE PRESENT MANUEL. SUIVRE CES PROCEDURES LORS DE CHAQUE REMPLACEMENT DE COMPOSANTS CRITIQUES, OU LORSQU'UN MAUVAIS FONCTIONNEMENT EST SUSPECTE.

SAFETY CHECK-OUT

(US model only)

After correcting the original service problem, perform the following safety checks before releasing the set to the customer :

1. Check the area of your repair for unsoldered or poorly-soldered connections. Check the entire board surface for solder splashes and bridges.
2. Check the interboard wiring to ensure that no wires are "pinched" or contact high-wattage resistors.
3. Check that all control knobs, shields, covers, ground straps, and mounting hardware have been replaced. Be absolutely certain that you have replaced all the insulators.
4. Look for unauthorized replacement parts, particularly transistors, that were installed during a previous repair. Point them out to the customer and recommend their replacement.
5. Look for parts which, though functioning, show obvious signs of deterioration. Point them out to the customer and recommend their replacement.
6. Check the line cord for cracks and abrasion. Recommend the replacement of any such line cord to the customer.
7. Check the condition of the monopole antenna (if any). Make sure the end is not broken off, and has the plastic cap on it. Point out the danger of impalement on a broken antenna to the customer, and recommend the antenna's replacement.
8. Check the B+ and HV to see they are at the values specified. Make sure your instruments are accurate ; be suspicious of your HV meter if sets always have low HV.
9. Check the antenna terminals, metal trim, "metallized" knobs, screws, and all other exposed metal parts for AC leakage. Check leakage as described below.

LEAKAGE TEST

The AC leakage from any exposed metal part to earth ground and from all exposed metal parts to any exposed metal part having a return to chassis, must not exceed 0.5mA (500 microampers). Leakage current can be measured by any one of three methods.

1. A commercial leakage tester, such as the Simpson 229 or RCA WT-540A. Follow the manufacturers' instructions to use these instruments.
2. A battery-operated AC milliammeter. The Data Precision 245 digital multimeter is suitable for this job.
3. Measuring the voltage drop across a resistor by means of a VOM or battery-operated AC voltmeter. The "limit" indication is 0.75V, so analog meters must have an accurate low-voltage scale. The Simpson 250 and Sanwa SH-63Trd are examples of a passive VOM that is suitable. Nearly all battery operated digital multimeters that have a 2V AC range are suitable. (See Fig. A)

HOW TO FIND A GOOD EARTH GROUND

A cold-water pipe is guaranteed earth ground ; the cover-plate retaining screw on most AC outlet boxes is also at earth ground. If the retaining screw is to be used as your earth-ground, verify that it is at ground by measuring the resistance between it and a cold-water pipe with an ohmmeter. The reading should be zero ohms. If a cold-water pipe is not accessible, connect a 60 – 100 watts trouble light (not a neon lamp) between the hot side of the receptacle and the retaining screw. Try both slots, if necessary, to locate the hot side of the line, the lamp should light at normal brilliance if the screw is at ground potential. (See Fig. B)

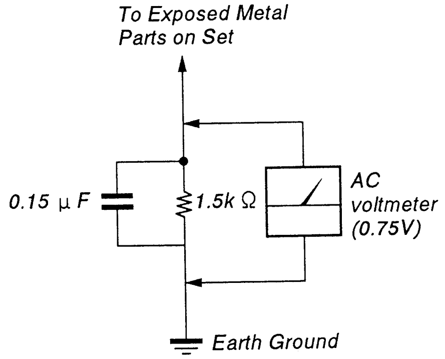


Fig. A. Using an AC voltmeter to check AC leakage.

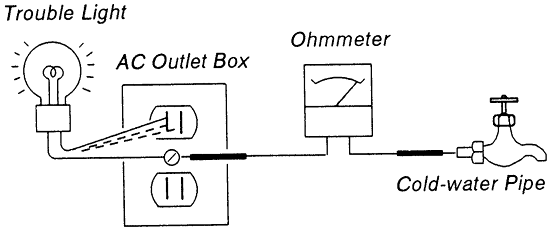


Fig B. Checking for earth ground.

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SECTION 1
GENERAL

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- KV-27V10/29V10C/29V10M

Step 1: Hookup

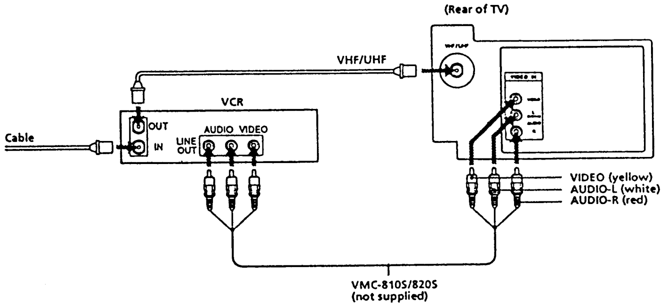
Connecting an antenna/cable TV system with a VCR

To connect your VCR to the TV, first check the model number of your TV and select the corresponding connection. For details on connection, see the instruction manual of your VCR. Before making connection, disconnect the AC power cords of the equipment to be connected.

After making these connections, you will be able to do the following:

- View the playback of video tapes
- Record one TV program while viewing another program

Without a cable box


(Rear of TV)
VHF/UHF
VCR
Cable
OUT
IN
LINE OUT
AUDIO VIDEO
VIDEO (yellow)
AUDIO-L (white)
AUDIO-R (red)
VMC-810S/820S
(not supplied)

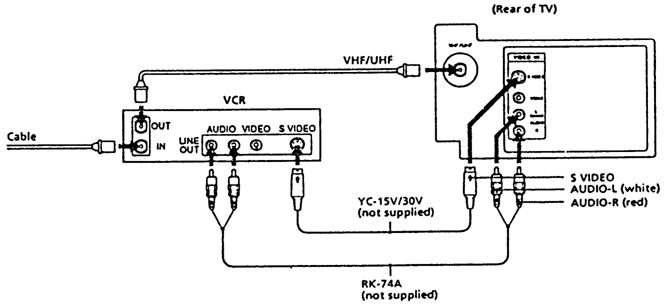
Note

- To connect a monaural VCR, connect the audio output of the VCR to AUDIO-L (mono) of VIDEO 1 IN on the TV.

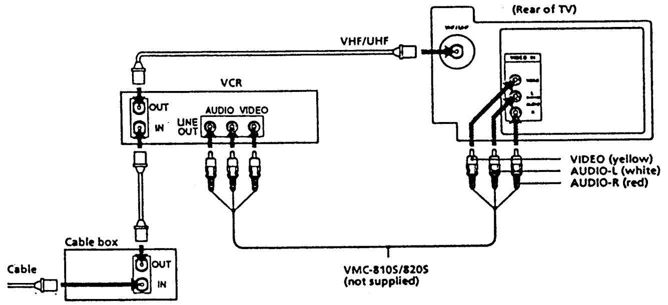
To an S video equipped VCR without a cable box

■ *KV-27V10/29V10C/29V10M/32S10 only*

If your VCR has an S video output jack, hook up as follows and then set S VIDEO to ON on your TV (page 12). (It is set to ON at the factory.)


(Rear of TV)
VHF/UHF
VCR
Cable
OUT
IN
LINE OUT
AUDIO VIDEO S VIDEO
S VIDEO
AUDIO-L (white)
AUDIO-R (red)
YC-15V/30V
(not supplied)
RK-74A
(not supplied)

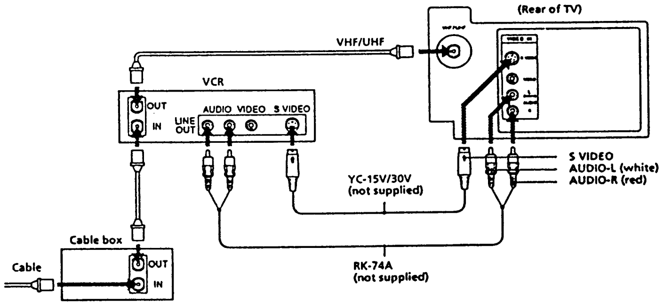
With a cable box


(Rear of TV)
VHF/UHF
VCR
OUT
IN
LINE OUT
AUDIO VIDEO
Cable box
Cable
OUT
IN
VIDEO (yellow)
AUDIO-L (white)
AUDIO-R (red)
VMC-810S/820S
(not supplied)

Note

- To connect a monaural VCR, connect the audio output of the VCR to AUDIO-L (mono) of VIDEO 1 IN on the TV.

TO an S video equipped VCR with a cable box


(Rear of TV)
VHF/UHF
VCR
OUT
IN
LINE OUT
AUDIO VIDEO S VIDEO
Cable box
Cable
OUT
IN
S VIDEO
AUDIO-L (white)
AUDIO-R (red)
YC-15V/30V
(not supplied)
RK-74A
(not supplied)

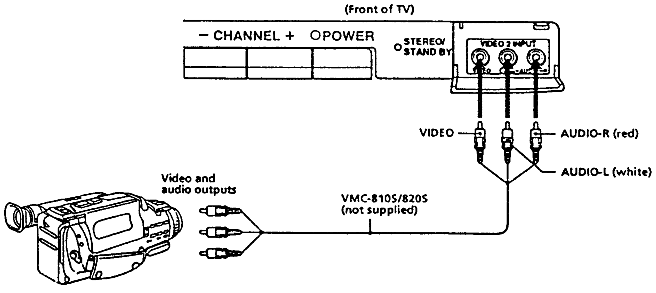
Note

- Video signals are composed of Y (luminance) and C (chroma) signals. The S connection sends the two signals separately preventing degradation, and gives better picture quality compared to conventional connection.

Connecting a camcorder

■ *KV-27V10/29V10C/29V10M only*

This connection is convenient for viewing a camcorder.


(Front of TV)
– CHANNEL +
OPOWER
OSTEREO/STAND BY
VIDEO 2 INPUT
VIDEO
AUDIO-R (red)
AUDIO-L (white)
Video and audio outputs
VMC-810S/820S (not supplied)

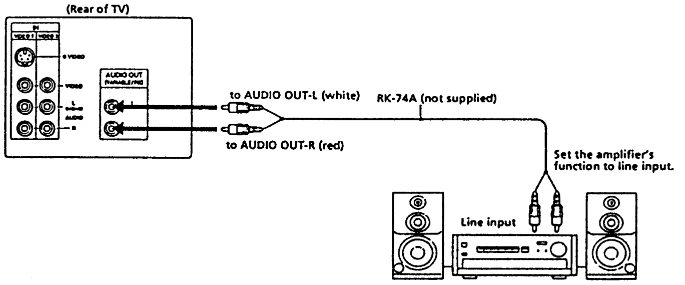
Note

- To connect a monaural camcorder, connect the audio output of the VCR to AUDIO-L (mono) of VIDEO 2 INPUT on the TV.

Connecting an audio system

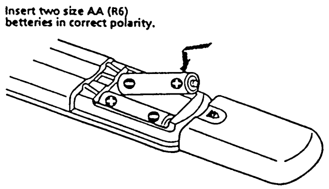
■ *KV-27V10/29V10C/29V10M only*

When connecting audio equipment, see page 17 and 18 for more information.

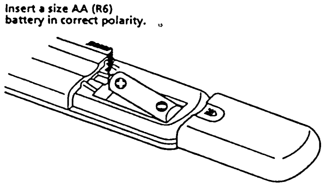

(Rear of TV)
AUDIO OUT
to AUDIO OUT-L (white)
RK-74A (not supplied)
to AUDIO OUT-R (red)
Set the amplifier's function to line input.
Line input

Step 2: Setting up the remote commander

■ *KV-27S10/29RS10C/32S10*
RM-Y116 remote commander


Insert two size AA (R6) betteries in correct polarity.

■ *KV-27V10/29V10C/29V10M*
RM-Y117 remote commander


Insert a size AA (R6) battery in correct polarity.

Notes

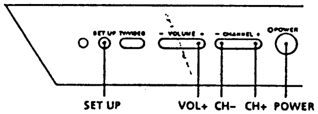
- With normal use, the battery should last for approximately six months.
- If you do not use the remote commander for an extended period of time, remove the battery to avoid possible damage from battery leakage.
- Do not handle the remote commander roughly. Do not drop it step on it or let it get wet.
- Do not place the remote commander in locations where it is direct sunlight, near a heater, or where the humidity is high.

Step 3: Setting up the TV automatically

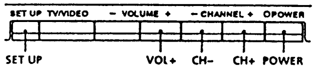
(AUTO SET UP)

You can set up your TV easily by using AUTO SET UP feature. It presets all the receivable channels. To set up the TV manually, see "Setting cable TV on or off" and "Presetting channels" (page 11).
If the TV is set to a video input, you cannot execute AUTO SET UP. Press TV/VIDEO so that a channel number appears.

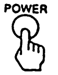
(Front of KV-27S10/29RS10/32S10)


SET UP
TV/VIDEO
– VOLUME +
– CHANNEL +
OPOWER
SET UP
VOL+
CH–
CH+
POWER

(Front of KV-27V10/29V10C/29V10M)

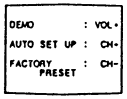

SET UP TV/VIDEO
– VOLUME +
– CHANNEL +
OPOWER
SET UP
VOL+
CH–
CH+
POWER

1 Press POWER to turn the TV on.



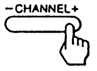
2 Press SET UP on the front of the TV.

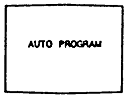
The menu appears.



DEMO : VOL+
AUTO SET UP : CH+
FACTORY PRESET : CH–

3 Press CH +.





AUTO PROGRAM

"AUTO PROGRAM" appears on the screen and the TV starts scanning and presetting channels automatically. When all the receivable channels are stored, "AUTO PROGRAM" disappears and the lowest numbered channel is displayed. If the TV receives cable TV channels, CATV is set to ON automatically.

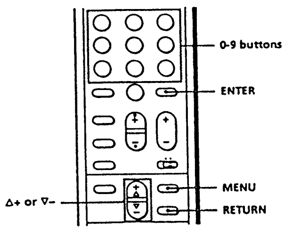
Note

- If more than 90 seconds elapse after you press a button, the menu disappear automatically.

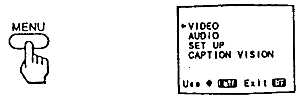
DEMO: To browse the main functions.
Press VOL+ in step3. The functions and menus a displayed one by one.
FACTORY PRESET: To restore the factory settings when you are confused about the TV settings.
Press CH– in step3. The settings of picture and sound are restored to the factory setting.

Erasing or adding channels

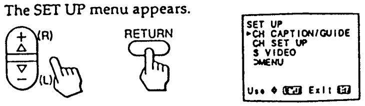
After AUTO SET UP you can erase unnecessary channels or add the channels you want. Preset channels during the day rather than late at night, when some channels may not be broadcasting.


0-9 buttons
ENTER
Δ+ or ∇–
MENU
RETURN

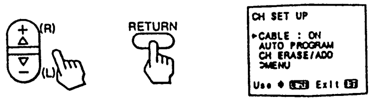
1 Press MENU.
The main menu appears.


MENU
▸VIDEO
AUDIO
SET UP
CAPTION VISION
Use ♦ Exit

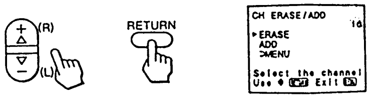
2 Press Δ+ or ∇– to select SET UP and press RETURN.
The SET UP menu appears.


(R)
(L)
RETURN
SET UP
▸CH CAPTION/GUIDE
CH SET UP
S VIDEO
⮌MENU
Use ♦ Exit

3 Press Δ+ or ∇– to select CH SET UP and press RETURN.
The CH SET UP menu appears.

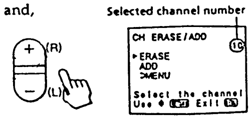

(R)
(L)
RETURN
CH SET UP
▸CABLE : ON
AUTO PROGRAM
CH ERASE/ADD
⮌MENU
Use ♦ Exit

4 Press Δ+ or ∇– to select CH ERASE/ADD and press RETURN.
The CH ERASE/ADD menu appears.


(R)
(L)
RETURN
CH ERASE/ADD 16
▸ERASE
ADD
⮌MENU
Select the channel
Use ♦ Exit

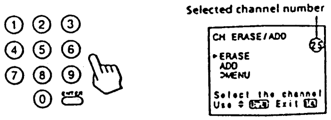
5 Erase and/or add the channel you want:

To erase an unwanted channel
(1) Make sure the cursor (▶) is beside ERASE.
(2) Press CH +/– to select the channel you want to erase and,


Selected channel number
(R)
(L)
CH ERASE/ADD
▸ERASE
ADD
⮌MENU
Select the channel
Use ♦ Exit

(3) press RETURN.
The indication "–" appears beside the channel number, showing that the channel is erased from the preset memory.

To add a channel that you want
(1) Press Δ+ or ∇– to select ADD.
(2) Press the 0 – 9 buttons to select the channel you want to add and press ENTER and,


Selected channel number
① ② ③
④ ⑤ ⑥
⑦ ⑧ ⑨
⓪ ENTER
CH ERASE/ADD
▸ERASE
ADD
⮌MENU
Select the channel
Use ♦ Exit

(3) press RETURN.
The indication "+" appears beside the channel number, showing that the channel is added to the preset memory.

6 To erase and/or add other channels, repeat step 5.

7 When you finish, press MENU.

Note

- If you erase or add a VHF or UHF channel, the cable TV channel with the same number is also erased or added, and vice versa.

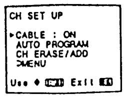
Setting cable TV on or off

If you have connected the TV to a cable TV system, set CABLE to ON, the factory setting. If not, set CABLE to OFF.
You do not have to do this procedure if you execute AUTO SET UP (page 9). Do this procedure only when you want to set it manually.

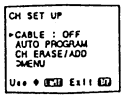
1 Press MENU.

2 Press Δ+ or ∇– to move the cursor (▶) to SET UP and press RETURN.

3 Press Δ+ or ∇– to move the cursor (▶) to CH SET UP and press RETURN.


CH SET UP
▸CABLE : ON
AUTO PROGRAM
CH ERASE/ADD
⮌MENU
Use ♦ Exit

4 Set CABLE to ON or OFF:
(1) Make sure the cursor (▶) is beside CABLE and press RETURN.
If the cursor is not beside CABLE, press Δ+ or ∇– to move the cursor and press RETURN.
(2) Press Δ+ or ∇– to select ON or OFF and,
(3) press RETURN.


CH SET UP
▸CABLE : OFF
AUTO PROGRAM
CH ERASE/ADD
⮌MENU
Use ♦ Exit

5 Press MENU to return to the original screen.

Note

- If CH SET UP menu appears in black, the TV is set to a video input and you cannot select CABLE. Press TV/VIDEO so that a channel number appears.

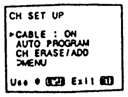
Presetting channels

You can preset TV channels easily by AUTO PROGRAM feature.
You do not have to do this procedure if you execute AUTO SET UP (page 9) . Do this produre only when you want to set it manually.

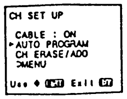
1 Press MENU.

2 Press Δ+ or ∇– to move the cursor (▶) to SET UP and press RETURN.

3 Press Δ+ or ∇– to move the cursor (▶) to CH SET UP and press RETURN.


CH SET UP
▸CABLE : ON
AUTO PROGRAM
CH ERASE/ADD
⮌MENU
Use ♦ Exit

4 Press Δ+ or ∇– to move the cursor (▶) to AUTO PROGRAM and press RETURN.


CH SET UP
CABLE : ON
▸AUTO PROGRAM
CH ERASE/ADD
⮌MENU
Use ♦ Exit

"AUTO PROGRAM" appears on the screen and the TV starts scanning and presetting channels automatically. When all the receivable channels are stored, "AUTO PROGRAM" disappears and the lowest numbered channel is displayed.

5 Press MENU to return to the original screen.

Note

- If the CH SET UP menu appears in black, the TV is set to a video input and you cannot select AUTO PROGRAM. Press TV/VIDEO or TV so that a channel number appears.

Setting S video on or off

■ *KV-27V10/29V10C/29V10M/32S10 only*

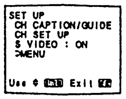
You can change the S VIDEO menu to ON or OFF .

1 **Press TV/VIDEO select VIDEO 1.**

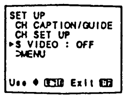
2 **Press MENU.**

3 **Press Δ+ or ∇– to move the cursor (▶) to SET UP and press RETURN.**

4 **Press Δ+ or ∇– to move the cursor (▶) to S VIDEO and press RETURN.**


SET UP
CH CAPTION/GUIDE
CH SET UP
S VIDEO : ON
>MENU
Use ◆ Exit

5 **Press Δ+ or ∇– to select ON or OFF and press RETURN.**


SET UP
CH CAPTION/GUIDE
CH SET UP
▶S VIDEO : OFF
>MENU
Use ◆ Exit

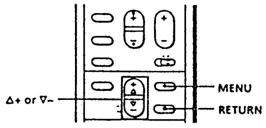
6 **Press MENU to return to the original screen.**

Note
- If S VIDEO appears in black, set a video input to VIDEO 1.
- If you set S VIDEO to ON, the TV automatically receive S video signals whenever a VCR with S video is connected.

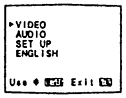
Changing the menu language

■ *KV-29RS10/29V10C/29V10M only*

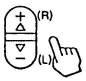
If you prefer Spanish to English, you can change the menu language.

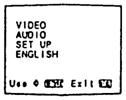

Δ+ or ∇–
MENU
RETURN

1 **Press MENU.**
The main menu appears.

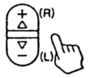

▶VIDEO
AUDIO
SET UP
ENGLISH
Use ◆ Exit

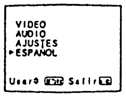
2 **Press Δ+ or ∇– to move the cursor (▶) to ENGLISH and press RETURN.**




VIDEO
AUDIO
SET UP
ENGLISH
Use ◆ Exit

3 **Press Δ+ or ∇– to select ESPAÑOL and press RETURN.**

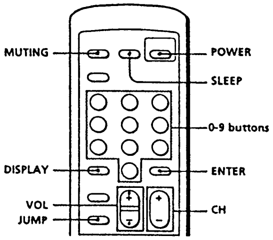



VIDEO
AUDIO
AJUSTES
▶ESPAÑOL
Usar◆ Salir

4 **Press MENU to return to the original screen.**

Note
- Certain parts of the ESPAÑOL menus remain in English.

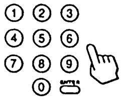
Watching the TV


MUTING
POWER
SLEEP
0-9 buttons
DISPLAY
ENTER
VOL
JUMP
CH

1 **Press POWER to turn the TV on.**

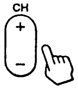
If "VIDEO" appears on the screen, press the TV/VIDEO button so that a channel number appears.

2 **Select the channel you want:**
To select a channel directly
Press the 0 – 9 buttons and then press ENTER.

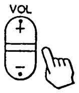

① ② ③
④ ⑤ ⑥
⑦ ⑧ ⑨
⓪

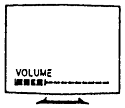
The channel can also be selected without pressing ENTER.

To scan through channels
Press CH +/– until the channel you want appears.



3 **Press VOL +/– to adjust the volume.**





Note
- Set the CABLE BOX/TV selector to TV. (*KV-27V10/29V10C/29V10M only*)

Switching quickly between two channels

Press JUMP.
The channel you watched previously appears.

Pressing JUMP again switches back the channel.

Muting the sound

Press MUTING.
"MUTING" appears on the screen.

To restore the sound, press MUTING again, or press VOL +.

Displaying on-screen information

Use this feature to check the channel number, channel caption (if set), and MTS mode (if SAP is selected).

Press DISPLAY.

To cancel the display, press DISPLAY again.

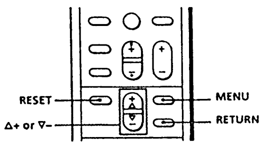
Setting the Sleep Timer

The TV stays on for the length of time you specify and then shuts off automatically.
Press SLEEP repeatedly until the time (minutes) you want appears.
Each time you press SLEEP, the time changes as follows: 30 → 60 → 90 → OFF.

To cancel the Sleep Timer, press SLEEP repeatedly until "SLEEP OFF" appears, or turn the TV off.

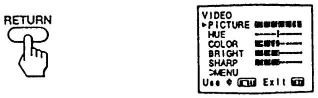
Adjusting the picture (VIDEO)

When watching TV programs, you can adjust the quality of the picture to suit your taste.
You can adjust the picture of video input(s) as well.
These settings are stored separately from those for the TV picture.

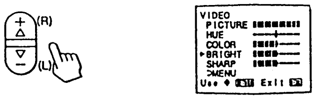

RESET
Δ+ or ∇–
MENU
RETURN

1 **Press MENU.**

2 **Make sure the cursor (▶) is beside VIDEO and press RETURN.**


RETURN
VIDEO
▶PICTURE
HUE
COLOR
BRIGHT
SHARP
>MENU
Use ♦ Exit

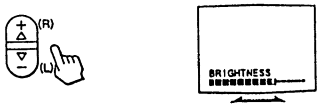
3 **Select the item you want to adjust.**
For example:
(1) To adjust brightness, press Δ+ or ∇– to select BRIGHT and,


(R)
(L)
VIDEO
PICTURE
HUE
COLOR
▶BRIGHT
SHARP
>MENU
Use ♦ Exit

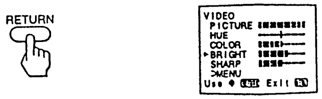
(2) press RETURN.

RETURN
BRIGHTNESS

4 **Adjust the selected item:**
(1) Press Δ+ or ∇– to adjust the item and,


(R)
(L)
BRIGHTNESS

(2) press RETURN.
The new setting appears in the VIDEO menu.


RETURN
VIDEO
PICTURE
HUE
COLOR
▶BRIGHT
SHARP
>MENU
Use ♦ Exit

For details on each item, see "Description of adjustable items" below.

5 **To adjust other items, repeat steps 3 and 4.**

Description of adjustable items

Item	Press Δ+ to	Press ∇– to
PICTURE	Increase picture contrast and give vivid color	Decrease picture contrast and give soft color
HUE	Make skin tones become greenish	Make skin tones become purplish
COLOR	Increase color intensity	Decrease color intensity
BRIGHT	Brighten the picture	Darken the picture
SHARP	Sharpen the picture	Soften the picture

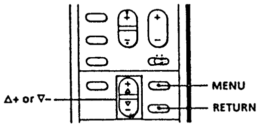
To restore the factory settings

Press RESET while the VIDEO menu is displayed.
All the settings are restored to the factory settings.

Adjusting screen brightness automatically (LUMISPONDER)

■ ***KV-27V10/29V10C/29V10M only***

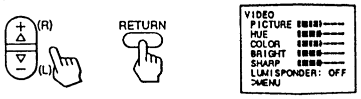
The LUMISPONDER feature adjusts the brightness of the screen automatically according to the ambient brightness. The LUMISPONDER function automatically adjusts the level set by the user in the VIDEO menu to the standard.


Δ+ or ∇–
MENU
RETURN

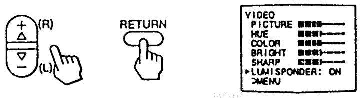
1 **Press MENU.**

2 **Press Δ+ or ∇– to select VIDEO and press RETURN.**

3 **Press Δ+ or ∇– to select LUMISPONDER and press RETURN.**

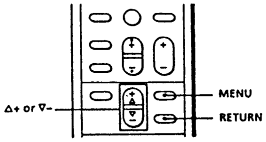

(R)
(L)
RETURN
VIDEO
PICTURE
HUE
COLOR
BRIGHT
SHARP
LUMISPONDER: OFF
>MENU

4 **Press Δ+ or ∇– to select ON or OFF and press RETURN.**


(R)
(L)
RETURN
VIDEO
PICTURE
HUE
COLOR
BRIGHT
SHARP
▶LUMISPONDER: ON
>MENU

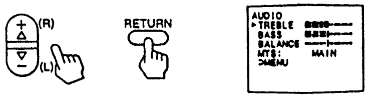
Adjusting the sound (AUDIO)

You can adjust the quality of the sound to suit your taste.
You can adjust the sound of video input(s) as well.
These settings are stored separately from those for the TV sound.

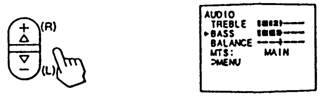

Δ+ or ∇–
MENU
RETURN

1 **Press MENU.**

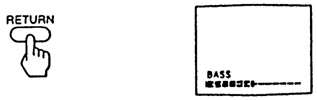
2 **Press Δ+ or ∇– to select AUDIO and press RETURN.**


(R)
(L)
RETURN
AUDIO
▶TREBLE
BASS
BALANCE
MTS: MAIN
>MENU

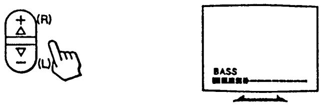
3 **Select the item you want to adjust.**
For example:
(1) To adjust bass, press Δ+ or ∇– to select BASS and,


(R)
(L)
AUDIO
TREBLE
▶BASS
BALANCE
MTS: MAIN
>MENU

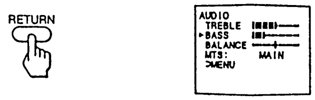
(2) press RETURN.


RETURN
BASS

4 Adjust the selected item:
(1) Press Δ+ or ∇– to adjust the item and,



(2) press RETURN.
The new setting appears in the AUDIO menu.


RETURN
AUDIO
TREBLE
▸BASS
BALANCE
MTS: MAIN
>MENU

For details on each item, see "Description of adjustable items" below.

5 To adjust other items, repeat steps 3 and 4 above.

Description of adjustable items

Item	Press Δ+ to	Press ∇– to
TREBLE	Increase the treble response	Decrease the treble response
BASS	Increase the bass response	Decrease the bass response
BALANCE	Emphasize the right speaker's volume	Emphasize the left speaker's volume

To restore the factory settings

Press RESET while the AUDIO menu is displayed.

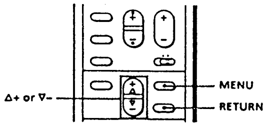
Note

- When SPEAKER (page 17) is OFF and AUDIO OUT (page 18) is FIXED condition, sound menu appears mid-level setting and it cannot be adjusted.

Listening to surround sound
(SURROUND)

■ *KV-27V10/29V10C/29V10M only*

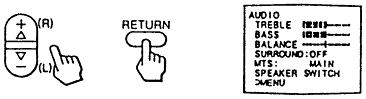
SURROUND feature simulate sound reproduction with the atmosphere of a movie theater or a concert hall. Surround sound is only effective for stereo programs.


Δ+ or ∇–
MENU
RETURN

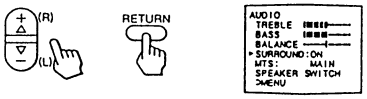
1 Press MENU.

2 Press Δ+ or ∇– to select AUDIO and press RETURN.

3 Press Δ+ or ∇– to select SURROUND and press RETURN.

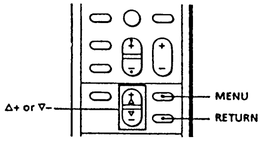

(R)
(L)
RETURN
AUDIO
TREBLE
BASS
BALANCE
SURROUND:OFF
MTS: MAIN
SPEAKER SWITCH
>MENU

4 Press Δ+ or ∇– to select ON and press RETURN.


(R)
(L)
RETURN
AUDIO
TREBLE
BASS
BALANCE
▸SURROUND:ON
MTS: MAIN
SPEAKER SWITCH
>MENU

Selecting stereo or bilingual programs
(MTS)

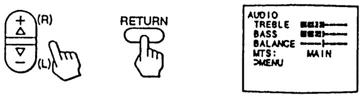
The Multichannel TV Sound (MTS) feature allows you to enjoy stereo sound or Second Audio Programs (SAP) at your choice. The initial setting is stereo sound (MAIN).


Δ+ or ∇–
MENU
RETURN

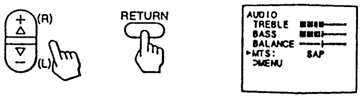
1 Press MENU.

2 Press Δ+ or ∇– to select AUDIO and press RETURN.

3 Press Δ+ or ∇– to select MTS and press RETURN.


(R)
(L)
RETURN
AUDIO
TREBLE
BASS
BALANCE
MTS: MAIN
>MENU

4 Press Δ+ or ∇– to select MAIN, SAP, or MONO and press RETURN.


(R)
(L)
RETURN
AUDIO
TREBLE
BASS
BALANCE
▸MTS: SAP
>MENU

Choose	To
MAIN	Listen to stereo sound. The STEREO indicator on the TV lights up while a stereo broadcast is received.
SAP	Listen to bilingual programs. The sound of non-SAP programs will be muted when SAP is selected.
MONO	Reduce noise during stereo broadcasts.

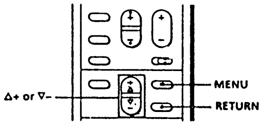
Note

- Stereo and SAP sounds are subject to program sources.

Setting the speaker switch (SPEAKER)

■ *KV-27V10/29V10C/29V10M only*

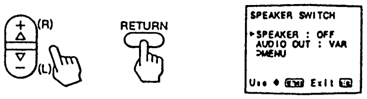
You may switch off the TV speakers when, for example, you want to listen to the sound through a stereo system.


Δ+ or ∇–
MENU
RETURN

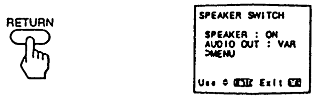
1 Press MENU.

2 Press Δ+ or ∇– to select AUDIO and press RETURN.

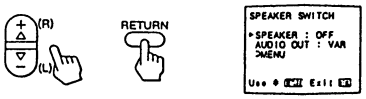
3 Press Δ+ or ∇– to select SPEAKER SWITCH and press RETURN.


(R)
(L)
RETURN
SPEAKER SWITCH
▸SPEAKER : OFF
AUDIO OUT : VAR
>MENU
Use ♦ MENU Exit

4 Make sure the cursor (▸) is beside SPEAKER and press RETURN.


RETURN
SPEAKER SWITCH
SPEAKER : ON
AUDIO OUT : VAR
>MENU
Use ♦ MENU Exit

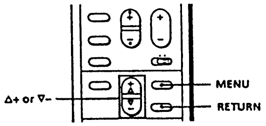
5 Press Δ+ or ∇– to select ON or OFF and press RETURN.


(R)
(L)
RETURN
SPEAKER SWITCH
▸SPEAKER : OFF
AUDIO OUT : VAR
>MENU
Use ♦ MENU Exit

Setting audio out
(AUDIO OUT)

■ *KV-27V10/29V10C/29V10M only*

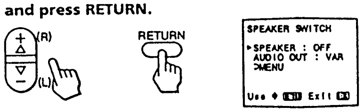
You can select audio out to variable or fixed when SPEAKER is set to OFF.
Audio out is variable when SPEAKER is set to ON.


Δ+ or ∇–
MENU
RETURN

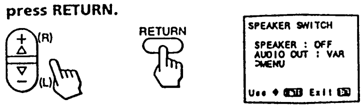
1 **Press MENU.**

2 **Press Δ+ or ∇– to select AUDIO and press RETURN.**

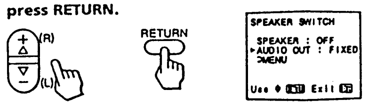
3 **Press Δ+ or ∇– to select SPEAKER SWITCH and press RETURN.**


(R)
(L)
RETURN
SPEAKER SWITCH
▸SPEAKER : OFF
AUDIO OUT : VAR
>MENU
Use ♦ Exit

4 **Press Δ+ or ∇– to select AUDIO OUT and press RETURN.**


(R)
(L)
RETURN
SPEAKER SWITCH
SPEAKER : OFF
AUDIO OUT : VAR
>MENU
Use ♦ Exit

5 **Press Δ+ or ∇– to select VAR or FIXED and press RETURN.**


(R)
(L)
RETURN
SPEAKER SWITCH
SPEAKER : OFF
▸AUDIO OUT : FIXED
>MENU
Use ♦ Exit

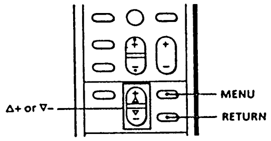
VAR: Sound output varied according to the TV settings. You can adjust the volume, bass, treble and balance.

FIXED: Sound output is always fixed to a certain level.
You cannot adjust the volume.

Customizing the channel number buttons (CH CAPTION/ GUIDE)

You can choose up to 12 channels, caption each channel, and assign a specific channel number button to each channel. This feature allows you to select your favorite channels easily by name. For example, you can name channel 20 "ESPN," and assign the channel number 4 button to it.

Setting captions to favorite channels

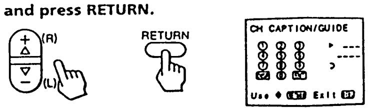

Δ+ or ∇–
MENU
RETURN

1 **Press TV/VIDEO to select TV mode.**

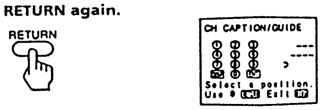
2 **Press MENU.**

3 **Press Δ+ or ∇– to select SET UP and press RETURN.**

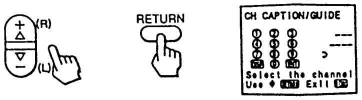
4 **Press Δ+ or ∇– to select CH CAPTION/GUIDE and press RETURN.**


(R)
(L)
RETURN
CH CAPTION/GUIDE
Use ♦ Exit

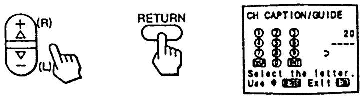
5 **Press RETURN again.**


RETURN
CH CAPTION/GUIDE
Select a position.
Use ♦ Exit

6 **Press Δ+ or ∇– to select a channel guide number button and press RETURN.**
Each time you press Δ+ or ∇–, the channel numbers change to red in turns. The channel number button you select will be the one you press to call up your favorite channel.

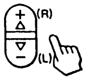

(R)
(L)
RETURN
CH CAPTION/GUIDE
Select the channel
Use ♦ Exit

7 **Press Δ+ or ∇– to select the channel that you want to caption and press RETURN.**

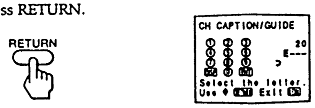

(R)
(L)
RETURN
CH CAPTION/GUIDE
20
Select the letter.
Use ♦ Exit

8 **Enter the letters (up to four) to caption the channel:**
(1) Press Δ+ or ∇– to select the first letter.
Each time you press Δ+ or ∇–, the letter changes as shown below and,

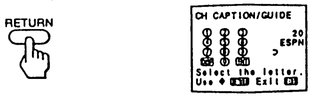
0↔1↔...↔9↔A↔B↔...↔Z↔&↔/↔_(blank space)



(2) press RETURN.


RETURN
CH CAPTION/GUIDE
20
E---
Select the letter.
Use ♦ Exit

(3) Repeat steps (1) and (2) to select the remaining letters and press RETURN.

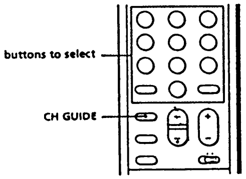

RETURN
CH CAPTION/GUIDE
20
ESPN
Select the letter.
Use ♦ Exit

9 **Repeat step 5 to 7 to caption other channels.**

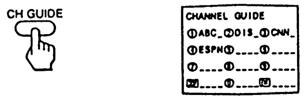
To erase a caption
Press RESET after step 5.

Notes
- The position number you already selected appears in yellow.
- If the CH CAPTION/GUIDE menu appears in black, the TV is set to a video input and you cannot select CH CAPTION/ GUIDE.
  Press TV/VIDEO to select TV mode.
- If more than 90 seconds elapse after you press a button, the menu disappear automatically.

Selecting a captioned channel


buttons to select
CH GUIDE

1 **Press CH GUIDE.**
The CHANNEL GUIDE menu appears showing channel captions and the corresponding channel number buttons.


CH GUIDE
CHANNEL GUIDE
①ABC_ ②DIS_ ③CNN_
④ESPN ⑤____ ⑥____
⑦____ ⑧____ ⑨____
____ ⓪____ ____

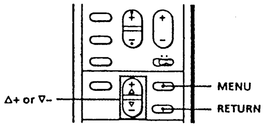
2 **Press a channel number button, the DISPLAY or ENTER button to select the channel you want.**

To cancel the CHANNEL GUIDE menu
Press CH GUIDE again.

Setting video labels (VIDEO LABEL)

■ ***KV-27V10/29V10C/29V10M only***

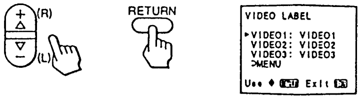
This feature allows you to label each input mode so that you can easily identify the connected equipment. For example, you can label VIDEO 1 IN as VHS.


Δ+ or ∇–
MENU
RETURN

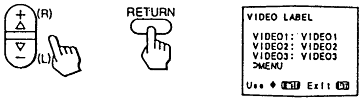
1 **Press MENU.**

2 **Press Δ+ or ∇– to select SET UP and press RETURN.**

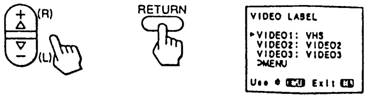
3 **Press Δ+ or ∇– to select VIDEO LABEL and press RETURN.**


(R)
(L)
RETURN
VIDEO LABEL
▸VIDEO1: VIDEO1
VIDEO2: VIDEO2
VIDEO3: VIDEO3
↩MENU
Use ◆ Exit

4 **Press Δ+ or ∇– to select the input mode you want to label and press RETURN.**


(R)
(L)
RETURN
VIDEO LABEL
VIDEO1: VIDEO1
VIDEO2: VIDEO2
VIDEO3: VIDEO3
↩MENU
Use ◆ Exit

5 **Press Δ+ or ∇– to select the label and press RETURN.**


(R)
(L)
RETURN
VIDEO LABEL
▸VIDEO1: VHS
VIDEO2: VIDEO2
VIDEO3: VIDEO3
↩MENU
Use ◆ Exit

Each time you press Δ+ or ∇–, the label changes as shown below.

VIDEO 1
VIDEO 1 ⟷ S VIDEO ⟷ BETA ⟷ 8 mm ⟷ VHS ⟷ LD

VIDEO 2
VIDEO 2 ⟷ BETA ⟷ 8 mm ⟷ VHS ⟷ LD

VIDEO 3
VIDEO 3 ⟷ BETA ⟷ 8 mm ⟷ VHS ⟷ LD

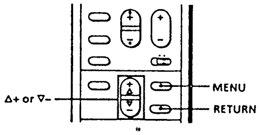
6 **Repeat steps 4 and 5 to label other input modes.**

Note
- If more than 90 seconds elapse after you press a button, the menu disappear automatically.

Displaying Caption Vision (CAPTION VISION)

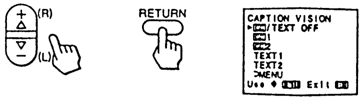
■ ***KV-27S10/27V10/32S10 only***

Some source programs provide with Caption Vision (Closed Caption). To display Caption Vision, select either CC1, CC2, TEXT1, or TEXT2 from the menu. CC1 or CC2 shows you a caption, that is a printed version of the dialog or sound effects of a program. (The mode should be set to CC1 for most programs.) TEXT1 or TEXT2 shows you text, that is information presented using half to full of the screen. It is not usually related to the program.

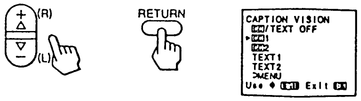

Δ+ or ∇–
MENU
RETURN

1 **Press MENU.**

2 **Press Δ+ or ∇– to select CAPTION VISION and press RETURN.**


(R)
(L)
RETURN
CAPTION VISION
▸CC/TEXT OFF
CC1
CC2
TEXT1
TEXT2
↩MENU
Use ◆ Exit

3 **Press Δ+ or ∇– to select the caption type and press RETURN.**


(R)
(L)
RETURN
CAPTION VISION
CC/TEXT OFF
▸CC1
CC2
TEXT1
TEXT2
↩MENU
Use ◆ Exit

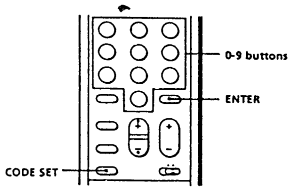
Note
- Captions may appear with a white box or another error instead of a certain word. Poor reception of TV programs can also cause errors in Caption Vision.

Operating video equipment

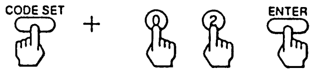
■ ***KV-27V10/29V10C/29V10M only***

You can operate video equipment that has an infrared remote sensor with the supplied remote commander. For the operatings, set the manufacturer's code number.

Setting the manufacturer's code


0-9 buttons
ENTER
CODE SET

While pressing CODE SET, press 0 – 9 to enter the manufacturer's code number (see the chart on the next page). For example, to operate a Sony 8 mm VCR, press 0, 2 and ENTER.


CODE SET
+
ENTER

The code numbers for Sony equipment are assigned as follows:

01	Beta, ED Beta VCR
02	8 mm VCR
03	VHS VCR (Factory setting)
04	MDP

• KV-27V15/32V15

Step 1: Hookup

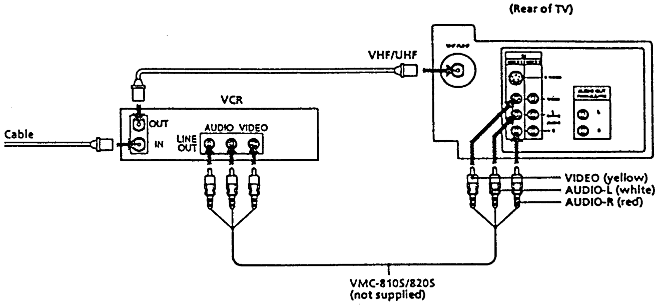
Connecting an antenna/cable TV system with a VCR

To connect your VCR to the TV, first check the model number of your TV and select the corresponding connection. For details on connection, see the instruction manual of your VCR. Before making connection, disconnect the AC power cords of the equipment to be connected.

After making these connections, you will be able to do the following:

- View the playback of video tapes
- Record one TV program while viewing another Program
- Watch two TV programs at once using a window Picture (Picture in Picture)

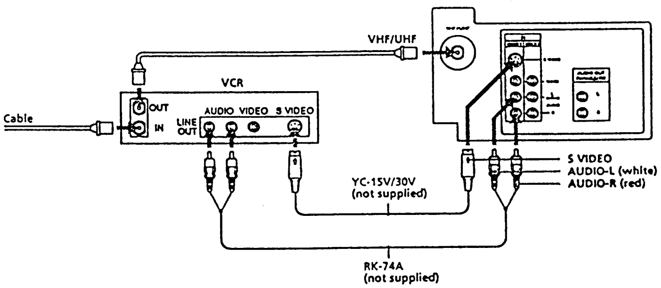
Without a cable box


(Rear of TV)
VHF/UHF
VCR
Cable
OUT
IN
LINE OUT
AUDIO VIDEO
VIDEO (yellow)
AUDIO-L (white)
AUDIO-R (red)
VMC-810S/820S
(not supplied)

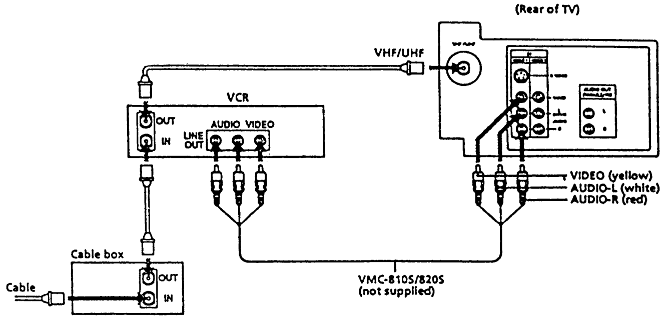
Note
- To connect a monaural VCR, connect the audio output of the VCR to AUDIO-L (mono) of VIDEO 1 IN on the TV.

To an S video equipped VCR without a cable box

If your VCR has an S video output jack, hook up as follows and then set S VIDEO to ON on your TV(page12). It is set to ON at the factory.

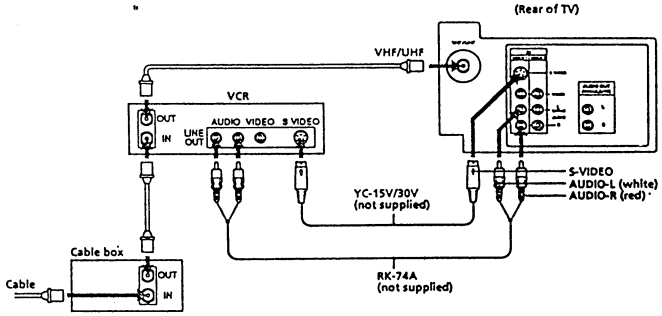

(Rear of TV)
VHF/UHF
VCR
Cable
OUT
IN
LINE OUT
AUDIO VIDEO S VIDEO
S VIDEO
AUDIO-L (white)
AUDIO-R (red)
YC-15V/30V
(not supplied)
RK-74A
(not supplied)

With a cable box


(Rear of TV)
VHF/UHF
VCR
OUT
IN
LINE OUT
AUDIO VIDEO
Cable box
Cable
VIDEO (yellow)
AUDIO-L (white)
AUDIO-R (red)
VMC-810S/820S
(not supplied)

Note
- To connect a monaural VCR, connect the audio output of the VCR to AUDIO-L (mono) of VIDEO 1 IN on the TV.

To an S video equipped VCR with a cable box

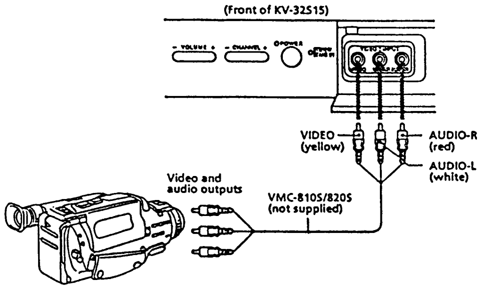

(Rear of TV)
VHF/UHF
VCR
OUT
IN
LINE OUT
AUDIO VIDEO S VIDEO
Cable box
Cable
S-VIDEO
AUDIO-L (white)
AUDIO-R (red)
YC-15V/30V
(not supplied)
RK-74A
(not supplied)

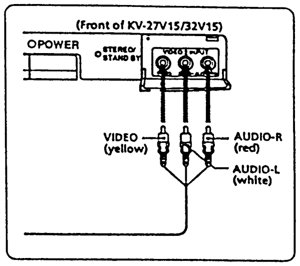
Note
- Video signals are composed of Y (luminance) and C (chroma) signals.The S connection sends the two signals separately preventing degradation, and gives better picture quality compared to conventional connection.

Connecting a camcorder

■ *KV-27V15/32S15/32V15 only*

This connection is convenient for viewing a camcorder.

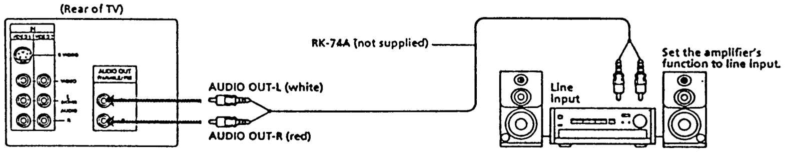

(Front of KV-32S15)
VIDEO (yellow)
AUDIO-R (red)
AUDIO-L (white)
Video and audio outputs
VMC-810S/820S (not supplied)


(Front of KV-27V15/32V15)
OPOWER
VIDEO (yellow)
AUDIO-R (red)
AUDIO-L (white)

Note
- To connect a monaural camcorder, connect the audio output of the VCR to AUDIO-L (mono) of VIDEO 2 INPUT on the TV.

Connecting an audio system

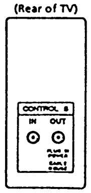
when connecting audio equipment, see page 20 for more information.


(Rear of TV)
RK-74A (not supplied)
AUDIO OUT-L (white)
AUDIO OUT-R (red)
Line input
Set the amplifier's function to line input.

Connecting other Sony equipment with CONTROL S jack

■ *KV-27V15/32V15 only*

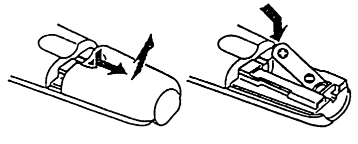
Connect the supplied cable box controller (Cable Mouse) to the CONTROL S OUT jack. Refer to the the Cable Mouse's manual for details on the connection.


(Rear of TV)
CONTROL S
IN
OUT

Make the following connections to control the TV and connected equipment with one remote commander.
- To control other Sony equipment with the TV's remote commander, connect the input of the equipment to CONTROL S OUT jack on the TV.
- To control the TV with the remote commander of other Sony equipment, connect the output of the equipment to CONTROL S IN jack on the TV.

Step 2: Setting up the remote commander

Insert one size AA (R6) battery (supplied) by matching the + and – on the battery to the diagram inside the battery compartment.

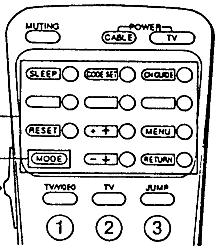


Notes
- With normal use, the battery should last for approximately six months.
- If you do not use the remote commander for an extended period of time, remove the battery to avoid possible damage from battery leakage.
- Do not handle the remote commander roughly. Do not drop it, step on it or let it get wet.
- Do not place the remote commander in direct sunlight, near a heater, or where the humidity is high.

Using the remote commander

The upper half of the remote commander has three selectable operation modes. Each button in this area has three different functions. You can select the mode by sliding a selector on the left side.

For normal TV viewing

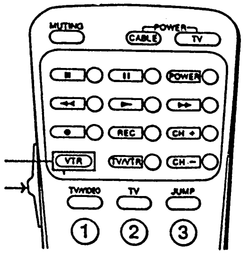

MUTING
POWER
CABLE
TV
SLEEP
CODE SET
CH GUIDE
RESET
+ +
MENU
MODE
– +
RETURN
TV/VIDEO
TV
JUMP
1
2
3

Variable indicator area

Indicates MODE selected

Set the selector to the lowest position.

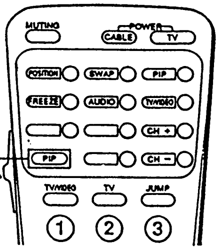
For operating video equipment


MUTING
POWER
CABLE
TV
■
II
POWER
◄◄
►
►►
●
REC
CH +
VTR
TV/VTR
CH –
TV/VIDEO
TV
JUMP
1
2
3

Indicates VTR selected

Set the selector to the middle position

For using the Picture-in-Picture feature


MUTING
POWER
CABLE
TV
POSITION
SWAP
PIP
FREEZE
AUDIO
TV/VIDEO
CH +
PIP
CH –
TV/VIDEO
TV
JUMP
1
2
3

Indicates PIP selected

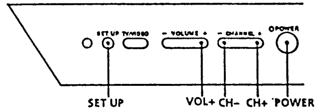
Set the selector to the highest position.

Step 3: Setting up the TV automatically (AUTO SET UP)

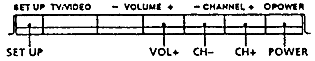
For cable box control (Cable Mouse) users (*KV-27V15/32V15 only*)
Refer to the supplied manual of Cable Mouse on how to set up your TV.

You can set up your TV easily by using AUTO SET UP feature. It presets all the receivable channels.
To set up the TV manually, see "Setting cable TV on or off" (page12) and "Presetting channels"(page12).
If the TV is set to a video input, you cannot execute AUTO SET UP. Press TV/VIDEO or TV so that a channel number appears.

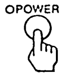
(Front of KV-27S15/29RS15/32S15)


SET UP
TV/VIDEO
– VOLUME +
– CHANNEL +
POWER
SET UP
VOL+
CH–
CH+
POWER

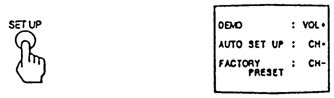
(Front of KV-27V15/32V15)


SET UP
TV/VIDEO
– VOLUME +
– CHANNEL +
POWER
SET UP
VOL+
CH–
CH+
POWER

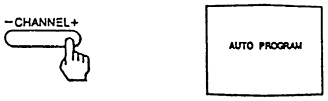
1 Press POWER to turn the TV on.



2 Press SET UP on the front of the TV.
The menu appears.


SET UP
DEMO : VOL+
AUTO SET UP : CH+
FACTORY PRESET : CH–

3 Press CH +.


–CHANNEL+
AUTO PROGRAM

"AUTO PROGRAM" appears on the screen and the TV starts scanning and presetting channels automatically. When all the receivable channels are stored, "AUTO PROGRAM" disappears and the lowest numbered channel is displayed. If the TV receives cable TV channels, CATV is set to ON automatically.

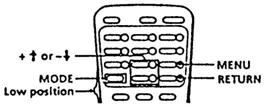
Note
- If more than 90 seconds elapse after you press a button, the menu disappear automatically.

DEMO:To browse the main functions,
Press VOL + in step 3. The functions and menus are displayed one by one.

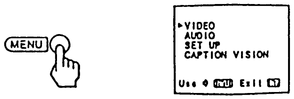
FACTORY PRESET:To restore the factory settings when you are confused about the TV settings,
Press CH– in step 3. The settings of picture and sound are restored to the factory setting.

Erasing or adding channels

After AUTO SET UP you can erase unnecessary channels or add the channels you want. Preset channels during the day rather than late at night, when some channels may not be broadcasting.

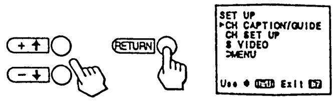

+ ⬆ or – ⬇
MODE
Low position
MENU
RETURN

1 Press MENU.
The main menu appears.

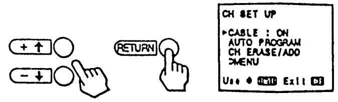

MENU
▸VIDEO
AUDIO
SET UP
CAPTION VISION
Use ⬍ Exit

(continued)

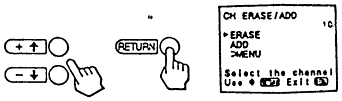
2 Press + ⬆ or – ⬇ to move the cursor (▶) to SET UP and press RETURN.
The SET UP menu appears.


+ ⬆
– ⬇
RETURN
SET UP
▸CH CAPTION/GUIDE
CH SET UP
S VIDEO
MENU
Use ⬍ Exit

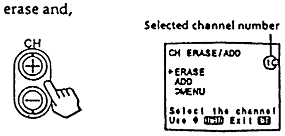
3 Press + ⬆ or – ⬇ to move the cursor (▶) to CH SET UP and press RETURN.
The CH SET UP menu appears.


+ ⬆
– ⬇
RETURN
CH SET UP
▸CABLE : ON
AUTO PROGRAM
CH ERASE/ADD
MENU
Use ⬍ Exit

4 Press + ⬆ or – ⬇ to move the cursor (▶) to CH ERASE/ADD and press RETURN.
The CH ERASE/ADD menu appears.

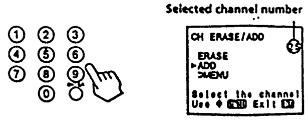

+ ⬆
– ⬇
RETURN
CH ERASE/ADD
10
▸ERASE
ADD
MENU
Select the channel
Use ⬍ Exit

5 Erase and/or add the channel you want:
To erase an unwanted channel
(1) Make sure the cursor (▶) is beside ERASE.
(2) Press CH +/– to select the channel you want to erase and,


Selected channel number
CH
CH ERASE/ADD
10
▸ERASE
ADD
MENU
Select the channel
Use ⬍ Exit

(3) press RETURN.
The indication "–" appears beside the channel number, showing that the channel is erased from the preset memory.

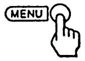
To add a channel that you want
(1) Press + ⬆ or – ⬇ to move the cursor (▶) to ADD.
(2) Press the 0 – 9 buttons to select the channel you want to add and press ENTER and,


Selected channel number
1 2 3
4 5 6
7 8 9
0
CH ERASE/ADD
ERASE
▸ADD
MENU
Select the channel
Use ⬍ Exit

(3) press RETURN.
The indication "+" appears beside the channel number, showing that the channel is added to the preset memory.

6 To erase and/or add other channels, repeat step 5.

7 When you finish, press MENU.



Note
- If you erase or add a VHF or UHF channel, the cable TV channel with the same number is also erased or added, and vice versa.

Setting cable TV on or off

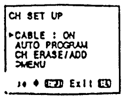
For cable box control (Cable Mouse) users (*KV-27V15/32V15 only*)
Refer to the supplied manual of Cable Mouse on how to set cable TV.

If you have connected the TV to a cable TV system, set CABLE to ON, the factory setting. If not, set CABLE to OFF.
You do not have to do this procedure if you execute AUTO SET UP (page 10). Do this procedure only when you want to set it manually.

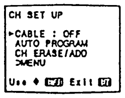
1 **Press MENU.**

2 **Press + ✦ or – ✦ to move the cursor (▶) to SET UP and press RETURN.**

3 **Press + ✦ or – ✦ to move the cursor (▶) to CH SET UP and press RETURN.**


CH SET UP
▶CABLE : ON
AUTO PROGRAM
CH ERASE/ADD
>MENU
Use ✦ Exit

4 **Set CABLE to ON or OFF:**
(1) Make sure the cursor (▶) is beside CABLE and press RETURN.
If the cursor is not beside CABLE, press + ✦ or – ✦ to move the cursor and press RETURN.
(2) Press + ✦ or – ✦ to select ON or OFF and, press RETURN.


CH SET UP
▶CABLE : OFF
AUTO PROGRAM
CH ERASE/ADD
>MENU
Use ✦ Exit

5 **Press MENU to return to the original screen.**

Note
If CH SET UP appears in black, the TV is set to a video input and you cannot select CABLE. Press TV/VIDEO or TV so that a channel number appears.

Presetting channels

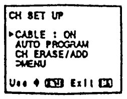
For cable box control (Cable Mouse) users (*KV-27V15/32V15 only*)
Refer to the supplied manual of Cable Mouse on how to preset channels.

You can preset TV channels easily by AUTO PROGRAM feature.
You do not have to do this procedure if you execute AUTO SET UP (page 10). Do this procedure only when you want to set it manually.

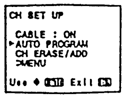
1 **Press MENU.**

2 **Press + ✦ or – ✦ to move the cursor (▶) to SET UP and press RETURN.**

3 **Press + ✦ or – ✦ to move the cursor (▶) to CH SET UP and press RETURN.**


CH SET UP
▶CABLE : ON
AUTO PROGRAM
CH ERASE/ADD
>MENU
Use ✦ Exit

4 **Press + ✦ or – ✦ to move the cursor (▶) to AUTO PROGRAM and press RETURN.**


CH SET UP
CABLE : ON
▶AUTO PROGRAM
CH ERASE/ADD
>MENU
Use ✦ Exit

"AUTO PROGRAM" appears on the screen and the TV starts scanning and presetting channels automatically. When all the receivable channels are stored, "AUTO PROGRAM" disappears and the lowest numbered channel is displayed.

5 **Press MENU to return to the original screen.**

Note
- If the CH SET UP menu appears in black, the TV is set to a video input and you cannot select AUTO PROGRAM. Press TV/VIDEO or TV so that a channel number appears.

Setting S video on or off

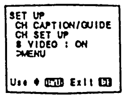
You can change the S VIDEO menu to ON or OFF.

1 **Press TV/VIDEO to select VIDEO 1.**

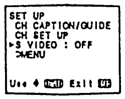
2 **Press MENU.**

3 **Press + ✦ or – ✦ to move the cursor (▶) to SET UP and press RETURN.**

4 **Press + ✦ or – ✦ to move the cursor (▶) to S VIDEO and press RETURN.**


SET UP
CH CAPTION/GUIDE
CH SET UP
S VIDEO : ON
>MENU
Use ✦ Exit

5 **Press + ✦ or – ✦ to select ON or OFF and press RETURN.**


SET UP
CH CAPTION/GUIDE
CH SET UP
▶S VIDEO : OFF
>MENU
Use ✦ Exit

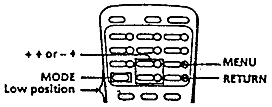
6 **Press MENU to return to the original screen.**

Notes
- If S VIDEO appears in black, set a video input to VIDEO 1.
- If you set S VIDEO to ON, the TV automatically receive S video signals whenever a VCR with S video is connected.

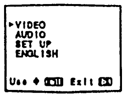
Changing the menu language

■ ***KV-29RS15 only***

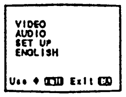
If you prefer Spanish to English, you can change the menu language.


+ ✦ or – ✦
MODE
Low position
MENU
RETURN

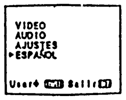
1 **Press MENU.**
The main menu appears.


▶VIDEO
AUDIO
SET UP
ENGLISH
Use ✦ Exit

2 **Press + ✦ or – ✦ to move the cursor (▶) to ENGLISH and press RETURN.**


VIDEO
AUDIO
SET UP
ENGLISH
Use ✦ Exit

3 **Press + ✦ or – ✦ to select ESPAÑOL and press RETURN.**

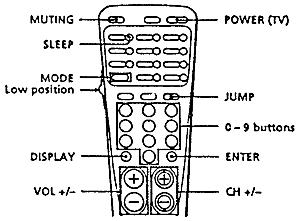

VIDEO
AUDIO
AJUSTES
▶ESPAÑOL

4 **Press MENU to return to the original screen.**

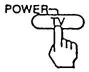
Note
- Certain parts of the ESPAÑOL menus remain in English.

Watching the TV

For cable box control (Cable Mouse) users (KV-27V15/32V15 only)
Refer to the supplied manual of Cable Mouse on how to watch the TV using the cable box control.


MUTING
SLEEP
MODE
Low position
DISPLAY
VOL +/-
POWER (TV)
JUMP
0 – 9 buttons
ENTER
CH +/-

1 **Press POWER (TV) to turn the TV on.**

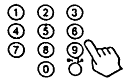


If "VIDEO" appears on the screen, press the TV/VIDEO or TV button so that a channel number appears.

2 **Select the channel you want:**

To select a channel directly

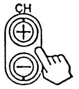
Press the 0 – 9 buttons and then press ENTER.


1 2 3
4 5 6
7 8 9
0

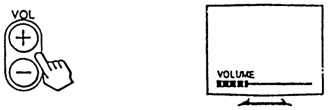
The channel can also be selected without pressing ENTER.

To scan through channels

Press CH +/– until the channel you want appears.



3 **Press VOL +/– to adjust the volume.**



Note

- Set the CABLE BOX/TV selector to TV.

Switching quickly between two channels

Press JUMP.

The channel you watched previously appears.

Pressing JUMP again switches back the channel.

Muting the sound

Press MUTING.

"MUTING" appears on the screen.

To restore the sound, press MUTING again, or press VOL +.

Displaying on-screen information

Use this feature to check the channel number, channel caption (if set), and MTS mode (if SAP is selected).

Press DISPLAY.

To cancel the display, press DISPLAY again.

Setting the Sleep Timer

The TV stays on for the length of time you specify and then shuts off automatically.

Press SLEEP repeatedly until the time (minutes) you want appears.

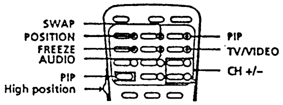
Each time you press SLEEP, the time changes as follows: 30 → 60 → 90 → OFF.

To cancel the Sleep Timer, press SLEEP repeatedly until "SLEEP OFF" appears, or turn the TV off.

Watching two programs at a time —PIP

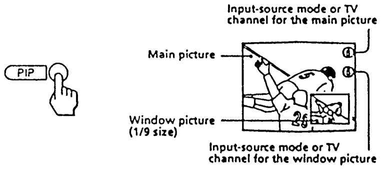
The Picture-in-Picture (PIP) feature allows you to watch both the main picture and a window picture simultaneously.

You can watch two TV channels at a time with this feature. See "Connecting an antenna/cable TV system with a VCR" (page 6) for connections.

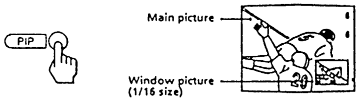

SWAP
POSITION
FREEZE
AUDIO
PIP
High position
PIP
TV/VIDEO
CH +/-

Displaying a window picture

Press PIP.


PIP
Input-source mode or TV channel for the main picture
Main picture
Window picture (1/9 size)
Input-source mode or TV channel for the window picture

Press PIP again to display a smaller window picture.


PIP
Main picture
Window picture (1/16 size)

To remove the window picture, press PIP again.

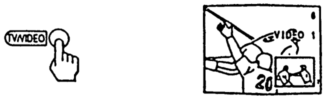
Notes

- If the main picture is not receiving an image, the window picture may be in black and white.
- The window picture may be affected by the condition of the main picture.
- The window picture sound is also output from the VARIABLE/FIX AUDIO OUT jacks when you listen to it.

Changing the window picture input mode

Press TV/VIDEO in the PIP control area to select the input mode.

Each time you press TV/VIDEO, "TV", "VIDEO 1", "VIDEO 2" and "VIDEO 3 (*except for KV-27S15/29RS15*)" appear in sequence.

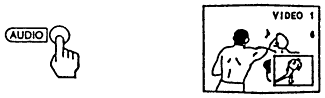

TV/VIDEO
VIDEO 1

A window picture will appear in the same input mode as the last time you used PIP.

Listening to the sound of the window picture

Press AUDIO.

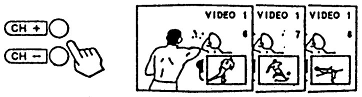
The ♪ display appears for a few seconds, indicating that the window picture sound is being received.


AUDIO
VIDEO 1

To restore the main picture sound, press AUDIO again.

Changing TV channels in the window picture

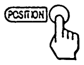
Press CH +/– in the PIP control area.

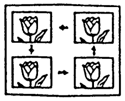

CH +
CH –
VIDEO 1
VIDEO 1
VIDEO 1

Changing the position of the window picture

Press POSITION.

Each time you press POSITION, the window picture will move counterclockwise on the screen.

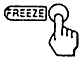


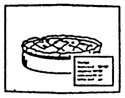


Freezing the window picture

This feature is useful when you want to write down a recipe from a cooking program, a displayed address or a phone number and so on.

Press FREEZE.



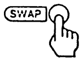


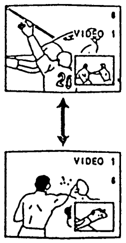
To restore the normal screen, press FREEZE again.

Swapping the main and window pictures

Press SWAP.

Each time you press SWAP, the images from the main and window pictures switch places along with the sound.

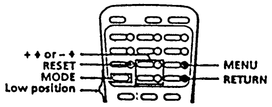



VIDEO 1
VIDEO 1

Note
- The channels being received through the AUX jack cannot be displayed as a window picture (*KV-32V15 only*).

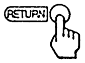
Adjusting the picture (VIDEO)

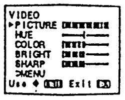
When watching TV programs, you can adjust the quality of the picture to suit your taste.
You can adjust the picture of video input(s) as well.
These settings are stored separately from those for the TV picture.


+ ↑ or – ↓
RESET
MODE
Low position
MENU
RETURN

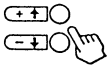
1 **Press MENU.**

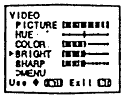
2 **Make sure the cursor (▶) is beside VIDEO and press RETURN.**



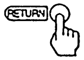

VIDEO
▶PICTURE
HUE
COLOR
BRIGHT
SHARP
MENU
Use ↕ RETURN Exit MENU

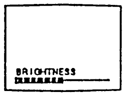
3 **Select the item you want to adjust.**
For example:
(1) To adjust brightness, press + ↑ or – ↓ to select BRIGHT and,



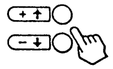

VIDEO
PICTURE
HUE
COLOR
▶BRIGHT
SHARP
MENU
Use ↕ RETURN Exit MENU

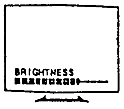
(2) press RETURN.



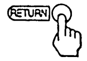

BRIGHTNESS

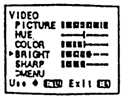
4 **Adjust the selected item:**
(1) Press + ↑ or – ↓ to adjust the item and,




BRIGHTNESS

(2) press RETURN.
The new setting appears in the VIDEO menu.




VIDEO
PICTURE
HUE
COLOR
▶BRIGHT
SHARP
MENU
Use ↕ RETURN Exit MENU

For details on each item, see "Description of adjustable items" below.

5 **To adjust other items, repeat steps 3 and 4.**

Description of adjustable items

Item	Press + ↑ to	Press – ↓ to
PICTURE	Increase picture contrast and give vivid color	Decrease picture contrast and give soft color
HUE	Make skin tones become greenish	Make skin tones become purplish
COLOR	Increase color intensity	Decrease color intensity
BRIGHT	Brighten the picture	Darken the picture
SHARP	Sharpen the picture	Soften the picture

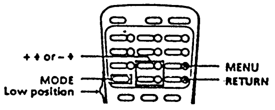
To restore the factory settings

Press RESET while the VIDEO menu is displayed.
All the settings are restored to the factory settings.

Adjusting screen brightness automatically (LUMISPONDER)

■ *KV-27V15/32V15 only*

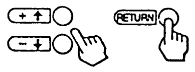
The LUMISPONDER feature adjusts the brightness of the screen automatically according to the ambient brightness. The LUMISPONDER function automatically adjusts the level set by the user in the VIDEO menu to the standard.

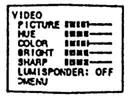

+ ↑ or – ↓
MODE
Low position
MENU
RETURN

1 **Press MENU.**

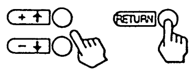
2 **Press + ↑ or – ↓ to select VIDEO and press RETURN.**

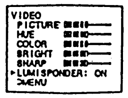
3 **Press + ↑ or – ↓ to select LUMISPONDER and press RETURN.**




VIDEO
PICTURE
HUE
COLOR
BRIGHT
SHARP
LUMISPONDER: OFF
MENU

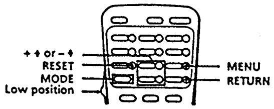
4 **Press + ↑ or – ↓ to select ON or OFF and press RETURN.**




VIDEO
PICTURE
HUE
COLOR
BRIGHT
SHARP
▶LUMISPONDER: ON
MENU

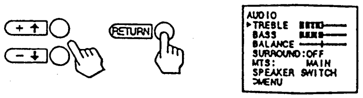
Adjusting the sound
(AUDIO)

You can adjust the quality of the TV sound to suit your taste.
You can adjust the sound of video input(s) as well. These settings are stored separately from those for the TV sound.

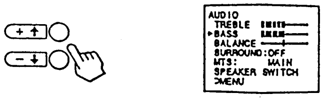

+ ↑ or – ↓
RESET
MODE
Low position
MENU
RETURN

1 Press MENU.

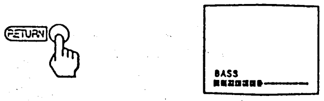
2 Press + ↑ or – ↓ to select AUDIO and press RETURN.


+ ↑
– ↓
RETURN
AUDIO
▸TREBLE
BASS
BALANCE
SURROUND:OFF
MTS: MAIN
SPEAKER SWITCH
MENU

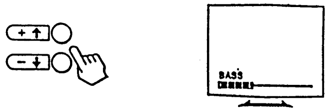
3 Select the item you want to adjust.
For example:
(1) To adjust bass, press + ↑ or – ↓ to select BASS and,


+ ↑
– ↓
AUDIO
TREBLE
▸BASS
BALANCE
SURROUND:OFF
MTS: MAIN
SPEAKER SWITCH
MENU

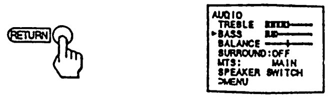
(2) press RETURN.


RETURN
BASS

4 Adjust the selected item:
(1) Press + ↑ or – ↓ to adjust the item and,



(2) press RETURN.
The new setting appears in the AUDIO menu.


RETURN
AUDIO
TREBLE
▸BASS
BALANCE
SURROUND:OFF
MTS: MAIN
SPEAKER SWITCH
MENU

For details on each item, see "Description of adjustable items" below.

5 To adjust other items, repeat steps 3 and 4 above.

Description of adjustable Items

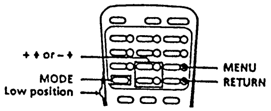
Item	Press + ↑ to	Press – ↓ to
TREBLE	Increase the treble response	Decrease the treble response
BASS	Increase the bass response	Decrease the bass response
BALANCE	Emphasize the right speaker's volume	Emphasize the left speaker's volume

To restore the factory settings
Press RESET while the AUDIO menu is displayed.

Note
- When SPEAKER (page 20) is OFF and AUDIO OUT (page 20) is FIXED condition, the sound is set to mid-level and it cannot be adjusted.

Listening to surround sound
(SURROUND)

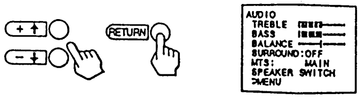
SURROUND feature simulates sound reproduction with the atmosphere of a movie theater or a concert hall. Surround sound is only effective for stereo programs.


+ ↑ or – ↓
MODE
Low position
MENU
RETURN

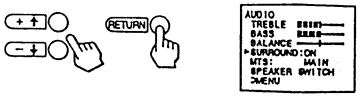
1 Press MENU.

2 Press + ↑ or – ↓ to select AUDIO and press RETURN.

3 Press + ↑ or – ↓ to select SURROUND and press RETURN.

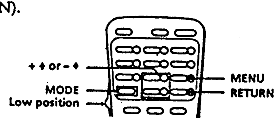

+ ↑
– ↓
RETURN
AUDIO
TREBLE
BASS
BALANCE
SURROUND:OFF
MTS: MAIN
SPEAKER SWITCH
MENU

4 Press + ↑ or – ↓ to select ON and press RETURN.


+ ↑
– ↓
RETURN
AUDIO
TREBLE
BASS
BALANCE
▸SURROUND:ON
MTS: MAIN
SPEAKER SWITCH
MENU

Selecting stereo or bilingual programs
(MTS)

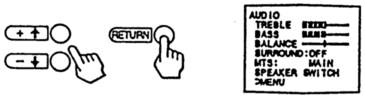
The Multichannel TV Sound (MTS) feature allows you to enjoy stereo sound or Second Audio Programs (SAP) at your choice. The initial setting is stereo sound (MAIN).


+ ↑ or – ↓
MODE
Low position
MENU
RETURN

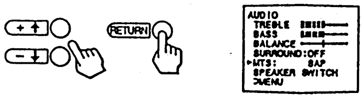
1 Press MENU.

2 Press + ↑ or – ↓ to select AUDIO and press RETURN.

3 Press + ↑ or – ↓ to select MTS and press RETURN.


+ ↑
– ↓
RETURN
AUDIO
TREBLE
BASS
BALANCE
SURROUND:OFF
MTS: MAIN
SPEAKER SWITCH
MENU

4 Press + ↑ or – ↓ to select MAIN, SAP, or MONO and press RETURN.

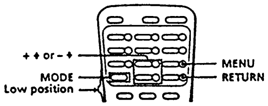

+ ↑
– ↓
RETURN
AUDIO
TREBLE
BASS
BALANCE
SURROUND:OFF
▸MTS: SAP
SPEAKER SWITCH
MENU

Choose	To
MAIN	Listen to stereo sound. The STEREO indicator on the TV lights up while a stereo broadcast is received.
SAP	Listen to bilingual programs. The sound of non-SAP programs will be muted when SAP is selected.
MONO	Reduce noise during stereo broadcasts.

Note
- Stereo and SAP sounds are subject to program sources.

Setting the speaker switch (SPEAKER)

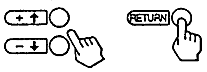
You may switch off the TV speakers when, for example, you want to listen to the sound through a stereo system.

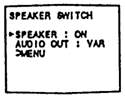


1 Press MENU.

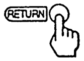
2 Press + ↑ or – ↓ to select AUDIO and press RETURN.

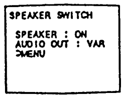
3 Press + ↑ or – ↓ to select SPEAKER SWITCH and press RETURN.



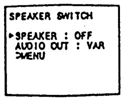

SPEAKER SWITCH
▸SPEAKER : ON
AUDIO OUT : VAR
⋗MENU

4 Make sure the cursor (▸) is beside SPEAKER and press RETURN.



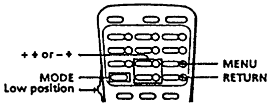

SPEAKER SWITCH
SPEAKER : ON
AUDIO OUT : VAR
⋗MENU

5 Press + ↑ or – ↓ to select ON or OFF and press RETURN.


SPEAKER SWITCH
▸SPEAKER : OFF
AUDIO OUT : VAR
⋗MENU

Setting audio out (AUDIO OUT)

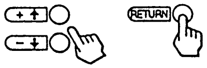
You can select audio out to variable or fixed when SPEAKER is set to OFF.
Audio out is variable when SPEAKER is set to ON.

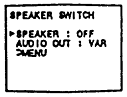


1 Press MENU.

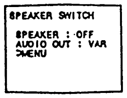
2 Press + ↑ or – ↓ to select AUDIO and press RETURN.

3 Press + ↑ or – ↓ to select SPEAKER SWITCH and press RETURN.

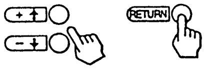


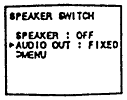

SPEAKER SWITCH
▸SPEAKER : OFF
AUDIO OUT : VAR
⋗MENU

4 Press + ↑ or – ↓ to select AUDIO OUT and press RETURN.


SPEAKER SWITCH
SPEAKER : OFF
AUDIO OUT : VAR
⋗MENU

5 Press + ↑ or – ↓ to select VAR or FIXED and press RETURN.




SPEAKER SWITCH
SPEAKER : OFF
▸AUDIO OUT : FIXED
⋗MENU

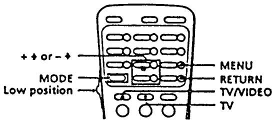
VAR: Sound output varied according to the TV settings. You can adjust the volume, bass, treble and balance.
FIXED: Sound output is always fixed to a certain level. You cannot adjust the volume.

Customizing the channel number buttons (CH CAPTION/GUIDE)

For cable box control (Cable Mouse) users (*KV-27V15/32V15 only*)
Make the setting of Cable Mouse before customizing the channel number buttons.

You can choose up to 12 channels, caption each channel, and assign a specific channel number button to each channel. This feature allows you to select your favorite channels easily by name. For example, you can name channel 20 "ESPN," and assign the channel number 4 button to it.

Setting captions to favorite channels

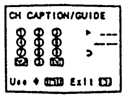


1 Press TV/VIDEO or TV to select TV mode.

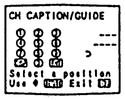
2 Press MENU.

3 Press + ↑ or – ↓ to select SET UP and press RETURN.

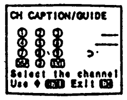
4 Press + ↑ or – ↓ to select CH CAPTION/GUIDE and press RETURN.


CH CAPTION/GUIDE
Use ♦ Exit

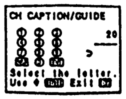
5 Press RETURN again.


CH CAPTION/GUIDE
Select a position
Use ♦ Exit

6 Press + ↑ or – ↓ to select a channel guide number button and press RETURN.
Each time you press + ↑ or – ↓, the channel positions change to red in turns. The channel number button you select will be the one you press to call up your favorite channel.

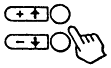

CH CAPTION/GUIDE
Select the channel
Use ♦ Exit

7 Press + ↑ or – ↓ to select the channel that you want to caption and press RETURN.

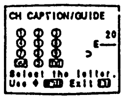

CH CAPTION/GUIDE
20
Select the letter.
Use ♦ Exit

8 Enter the letters (up to four) to caption the channel:
(1) Press + ↑ or – ↓ to select the first letter.
Each time you press + ↑ or – ↓, the letter changes as shown below and,

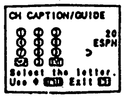
0↔1↔...↔9↔A↔B↔...↔Z↔&↔/↔_(blank space)



(2) press RETURN.


CH CAPTION/GUIDE
20
E
Select the letter.
Use ♦ Exit

(3) Repeat steps (1) and (2) to select the remaining letters and press RETURN.


CH CAPTION/GUIDE
20
ESPN
Select the letter.
Use ♦ Exit

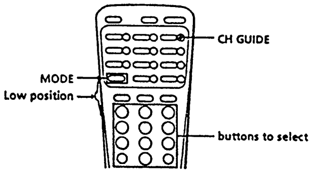
(continued)

9 Repeat step 5 to 7 to caption other channels.

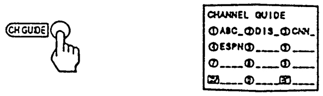
To erase a caption
Press RESET after step 5.

NOTE
- The position number you already selected appears in yellow.
- If the CH CAPTION/GUIDE menu appears in black, the TV is set to a video input and you cannot select CH CAPTION/GUIDE.
- If more than 90 seconds elapse after you press a button, the menu disappears automatically.

Selecting a captioned channel


CH GUIDE
MODE
Low position
buttons to select

1 Press CH GUIDE.
The CHANNEL GUIDE menu appears showing channel captions and the corresponding channel number buttons.


CH GUIDE
CHANNEL GUIDE
①ABC_②DIS_③CNN_
④ESPN⑤____⑥____
⑦____⑧____⑨____
____⓪____ ____

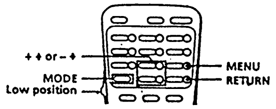
2 Press a channel number button, the DISP or ENT button to select the channel you want.

To cancel the CHANNEL GUIDE menu
Press CH GUIDE again.

Setting video labels (VIDEO LABEL)

■ *KV-27V15/32S15/32V15 only*

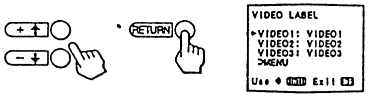
This feature allows you to label each input mode so that you can easily identify the connected equipment. For example, you can label VIDEO 1 IN as VHS.


+ ♦ or – ♦
MODE
Low position
MENU
RETURN

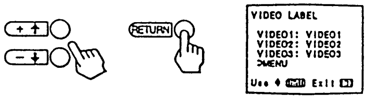
1 Press MENU.

2 Press + ♦ or – ♦ to select SET UP and press RETURN.

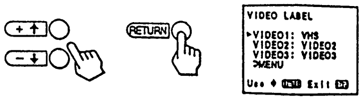
3 Press + ♦ or – ♦ to select VIDEO LABEL and press RETURN.


+ ↑
– ↓
RETURN
VIDEO LABEL
▸VIDEO1: VIDEO1
VIDEO2: VIDEO2
VIDEO3: VIDEO3
>MENU
Use ♦ Exit

4 Press + ♦ or – ♦ to select the input mode you want to label and press RETURN.


+ ↑
– ↓
RETURN
VIDEO LABEL
VIDEO1: VIDEO1
VIDEO2: VIDEO2
VIDEO3: VIDEO3
>MENU
Use ♦ Exit

5 Press + ♦ or – ♦ to select the label and press RETURN.


+ ↑
– ↓
RETURN
VIDEO LABEL
▸VIDEO1: VHS
VIDEO2: VIDEO2
VIDEO3: VIDEO3
>MENU
Use ♦ Exit

Each time you press + ♦ or – ♦, the label changes as shown below.

VIDEO 1
VIDEO 1 ⟷ S VIDEO ⟷ BETA ⟷ 8 mm ⟷ VHS ⟷ LD

VIDEO 2
VIDEO 2 ⟷ BETA ⟷ 8 mm ⟷ VHS ⟷ LD

VIDEO 3
VIDEO 3 ⟷ BETA ⟷ 8 mm ⟷ VHS ⟷ LD

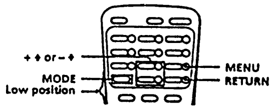
6 Repeat steps 4 and 5 to label other input modes.

Note
- If more than 90 seconds elapse after you press a button, the menu disappears automatically.

Displaying Caption Vision (CAPTION VISION)

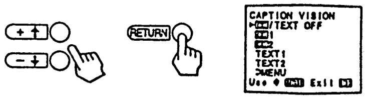
■ *KV-27S15/27V15/32S15/32V15 only*

Some source programs provide with Caption Vision (Closed Caption). To display Caption Vision, select either CC1, CC2, TEXT1, or TEXT2 from the menu. CC1 or CC2 shows you a caption, that is a printed version of the dialog or sound effects of a program. (The mode should be set to CC1 for most programs.) TEXT1 or TEXT2 shows you text, that is information presented using half to full of the screen. It is not usually related to the program.

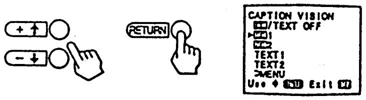

+ ♦ or – ♦
MODE
Low position
MENU
RETURN

1 Press MENU.

2 Press + ♦ or – ♦ to select CAPTION VISION and press RETURN.


+ ↑
– ↓
RETURN
CAPTION VISION
▸CC/TEXT OFF
CC1
CC2
TEXT1
TEXT2
>MENU
Use ♦ Exit

3 Press + ♦ or – ♦ to select the caption type and press RETURN.

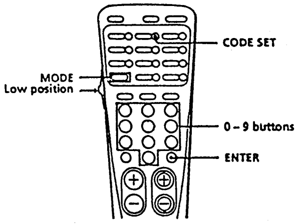

+ ↑
– ↓
RETURN
CAPTION VISION
CC/TEXT OFF
▸CC1
CC2
TEXT1
TEXT2
>MENU
Use ♦ Exit

Note
- Captions may appear with a white box or another error instead of a certain word. Poor reception of TV programs can also cause errors in Caption Vision.

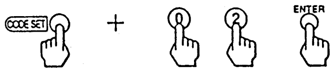
Operating video equipment

You can operate video equipment that has an infrared remote sensor with the supplied remote commander. For the operations, set the manufacturer's code number.

Setting the manufacturer's code



While pressing CODE SET, press 0 – 9 to enter the manufacturer's code number (see the chart in the right column). For example, to operate a Sony 8 mm VCR, press 0, 2 and ENTER.



The code numbers for Sony equipment are assigned as follows:

01 Beta, ED Beta VCR
02 8 mm VCR
03 VHS VCR (Fadtory preset of Remote Commander.)

VCR Manufacturer Code numbers

Manufacturer	Code number
SONY	01, 02, 03
CANON	05
EMERSON	22, 30, 33
FISHER	10, 11, 12, 15
FUNAI	29
GENERAL ELECTRIC	05, 08
GOLDSTAR	25
HITACHI	07, 08, 36
JVC	16, 35
MAGNAVOX	05, 06, 09
MITSUBISHI	18, 19, 26, 27
MULTITECH	29
NEC	16, 23, 31
PANASONIC	05, 06
PHILCO	05, 06
PHILIPS	05, 06, 09
QUASAR	05, 06
RCA	07, 08
SAMSUNG	24, 32
SANYO	11, 15
SCOTT	21
SHARP	13, 14
SHINTOM	34
SYLVANIA	05, 06, 09
SYMPHONIC	29
TEKNIKA	28, 29
TOSHIBA	20, 21
TOTE VISION	25
ZENITH	17

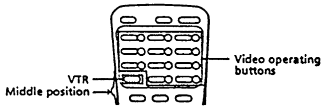
MDP manufacturer code numbers

Manufacturer	Code number
SONY	04
KENWOOD	58
MAGNAVOX	52
MARANZ	54
MITSUBISHI	51
PANASONIC	55
PHILIPS	52
PIONEER	51
RCA	51
SANYO	57
SHARP	56
YAMAHA	53

Notes
- If more than one code number is listed, try entering them one by one, until you come to the correct code for your equipment.
- In some rare cases, you may not be able to operate your non-Sony video equipment with this remote commander. This is because your equipment may use a code that is not provided with this remote commander. In this case, please use the equipment's own remote control unit.

Caution
When you remove a battery from the remote commander, the code may revert to 03. Reset the code each time you replace the battery, if necessary.

Operating video equipment



Use the video operating buttons on the remote commander to operate the video equipment.

Operating a VCR	Buttons on the remote commander
To turn on or off	Press POWER
To change channels	Press CH +/–
To record	Press ● and REC simultaneously
To play	Press ▶
To stop	Press ■
To fast forward	Press ▶▶
To rewind the tape	Press ◀◀
To pause	Press II
To search the picture forward and backward	Press ▶▶ or ◀◀ during playback

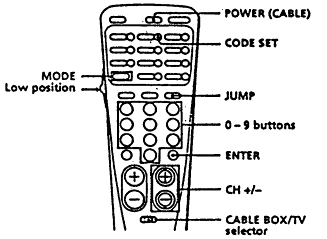
Operating the laser-disc player	Buttons on the remote commander
To play	Press ▶
To stop	Press ■
To pause	Press II To resume normal playback, press again.
To search the picture forward and backward	Keep pressing ▶▶ or ◀◀ during playback To resume normal playback, release the button.
To search the chapter	Press CH +/–

Note
- If the video equipment does not have a certain function, the corresponding button on this remote commander will not operate.

Operating a cable box

For cable box control (Cable Mouse) users (*KV-27V15/32V15 only*)
Set the CABLE BOX/TV selector to TV.

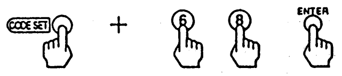
Follow these instructions to set the manufacturer's code which will enable you to operate a connected cable box with the pre-programmed remote commander. For example, you can set the remote commander to operate a connected Zenith cable box.



1 **Set the CABLE BOX/TV selector to CABLE BOX.**

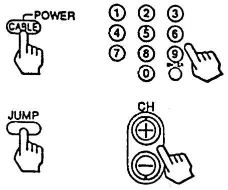
CABLE BOX . . TV

2 **While pressing CODE SET, press 6 and 8 (Zenith's code number —see chart on the next page) and ENTER.**



(continued)

3 Use POWER(CABLE) and the TV control buttons (0 – 9, ENTER, JUMP and CH +/–) to operate the cable box.



To operate the TV

Set the CABLE BOX/TV selector to TV. Then use the TV control buttons to control the TV.

For more details on operating the cable box

Refer to the operating instructions that come with the cable box.

Manufactures and code numbers (cable box)

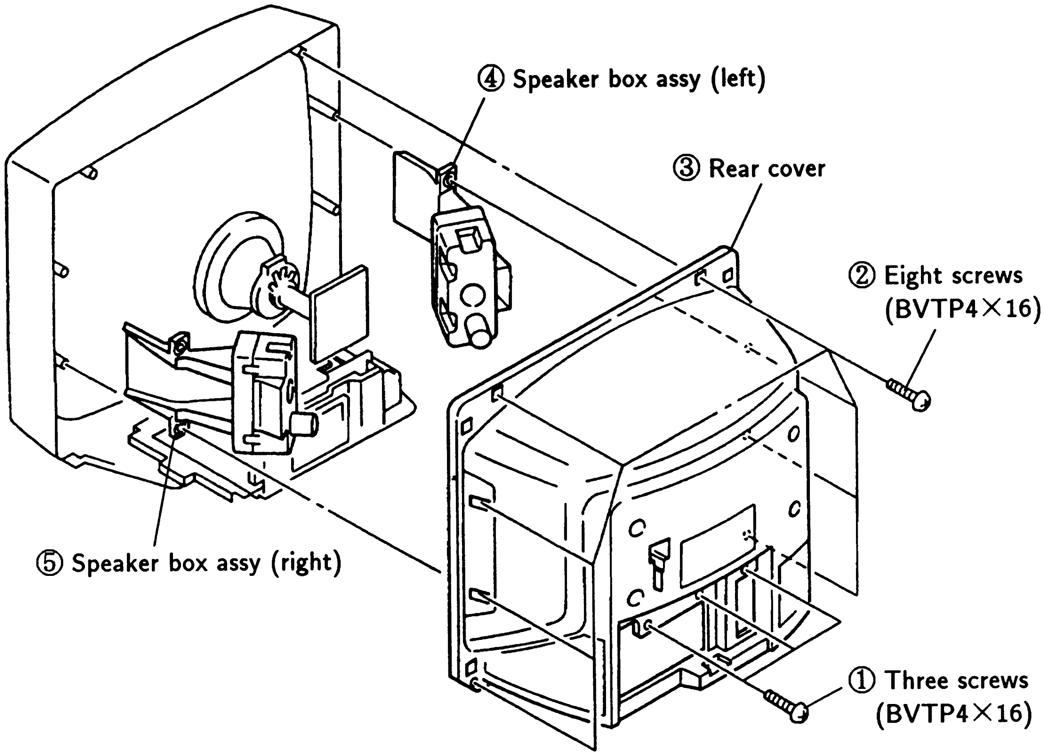
Manufacturer	Code number
JERROLD	60, 61, 62, 63, 64, 65, 73
PIONEER	69, 70
SCIENTIFIC ATLANTA	66, 67
TOCOM	71, 72
ZENITH	68

Notes

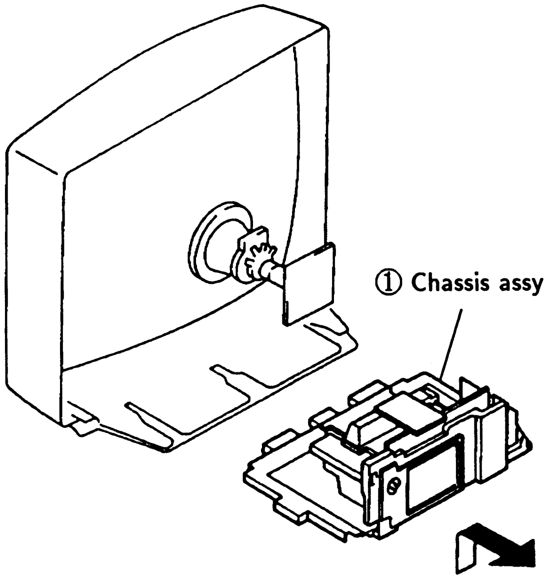
- If more than one code number is listed, try entering them one by one until you come to the correct code for your equipment.
- If you enter a new code number, the code number you previously entered at that setting is erased.
- In some cases, your equipment may use a code that is not provided with this remote commander and you may not be able to operate your cable box with the supplied remote commander. In this case, use the equipment's own remote control unit.
- When you remove a battery from the remote commander, the code may be erased. Reset the code each time you replace the battery, if necessary.

SECTION 2
DISASSEMBLY

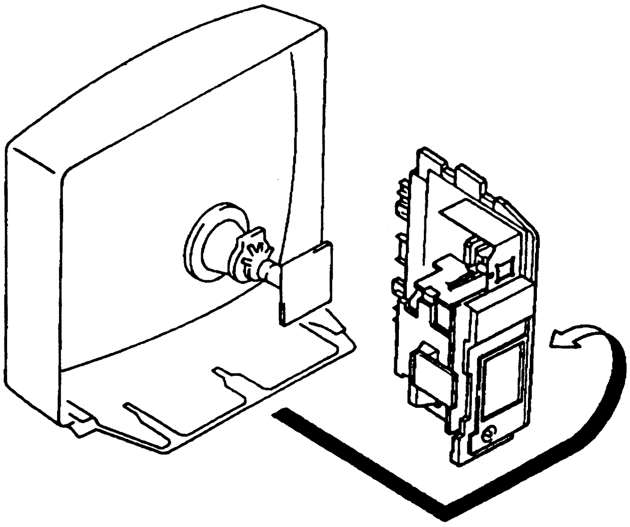
2-1. REAR COVER AND SPEAKER BOX ASSEMBLY REMOVAL


④ Speaker box assy (left)
③ Rear cover
② Eight screws
(BVTP4×16)
⑤ Speaker box assy (right)
① Three screws
(BVTP4×16)

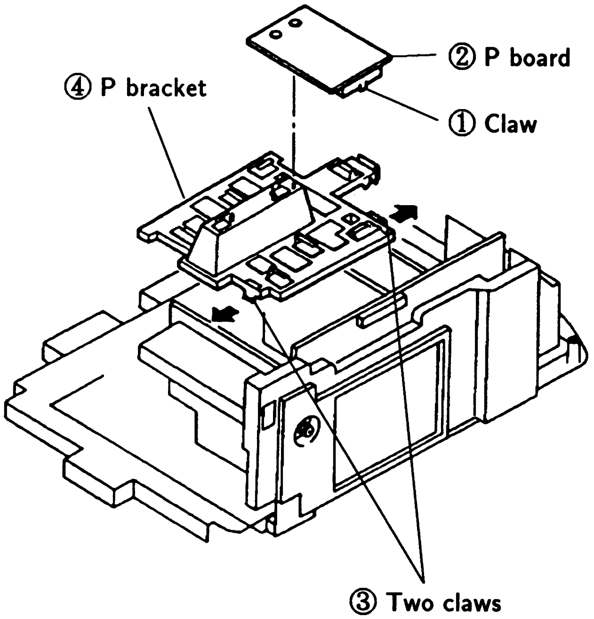
2-2. CHASSIS ASSEMBLY REMOVAL


① Chassis assy

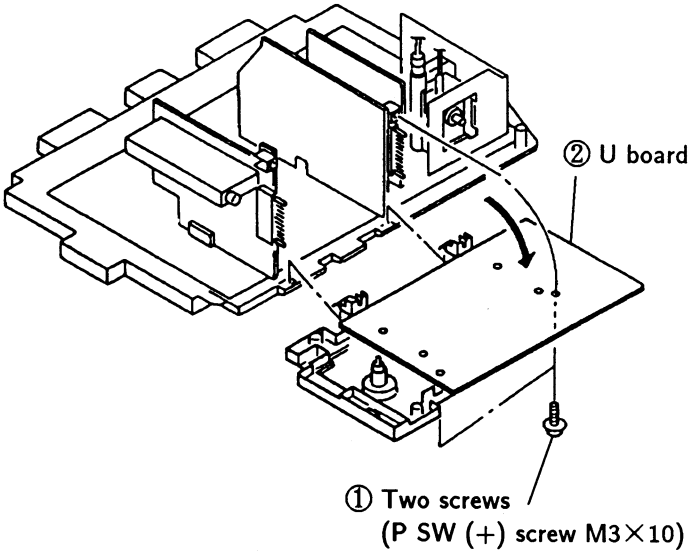
2-3. SERVICE POSITION



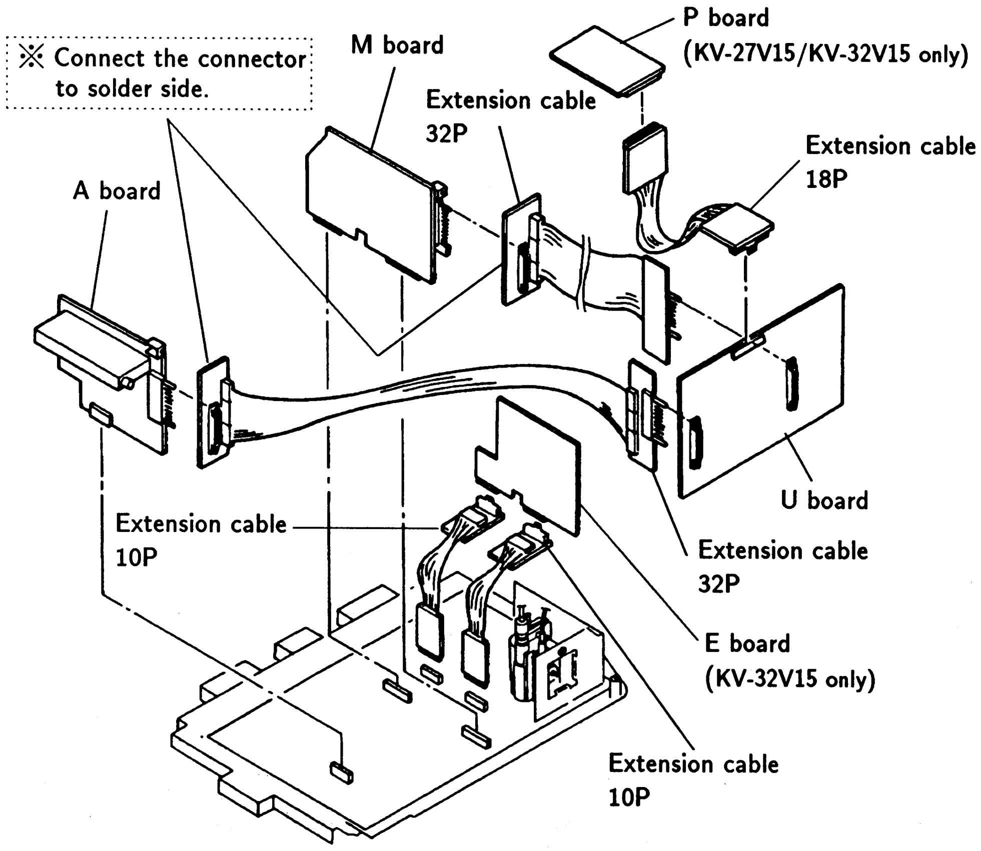
2-4. P BOARD AND BRACKET REMOVAL (KV-27V15/KV-32V15 only)

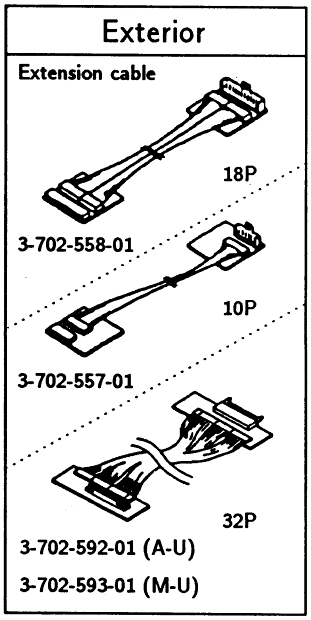

② P board
④ P bracket
① Claw
③ Two claws

2-5. U BOARD REMOVAL

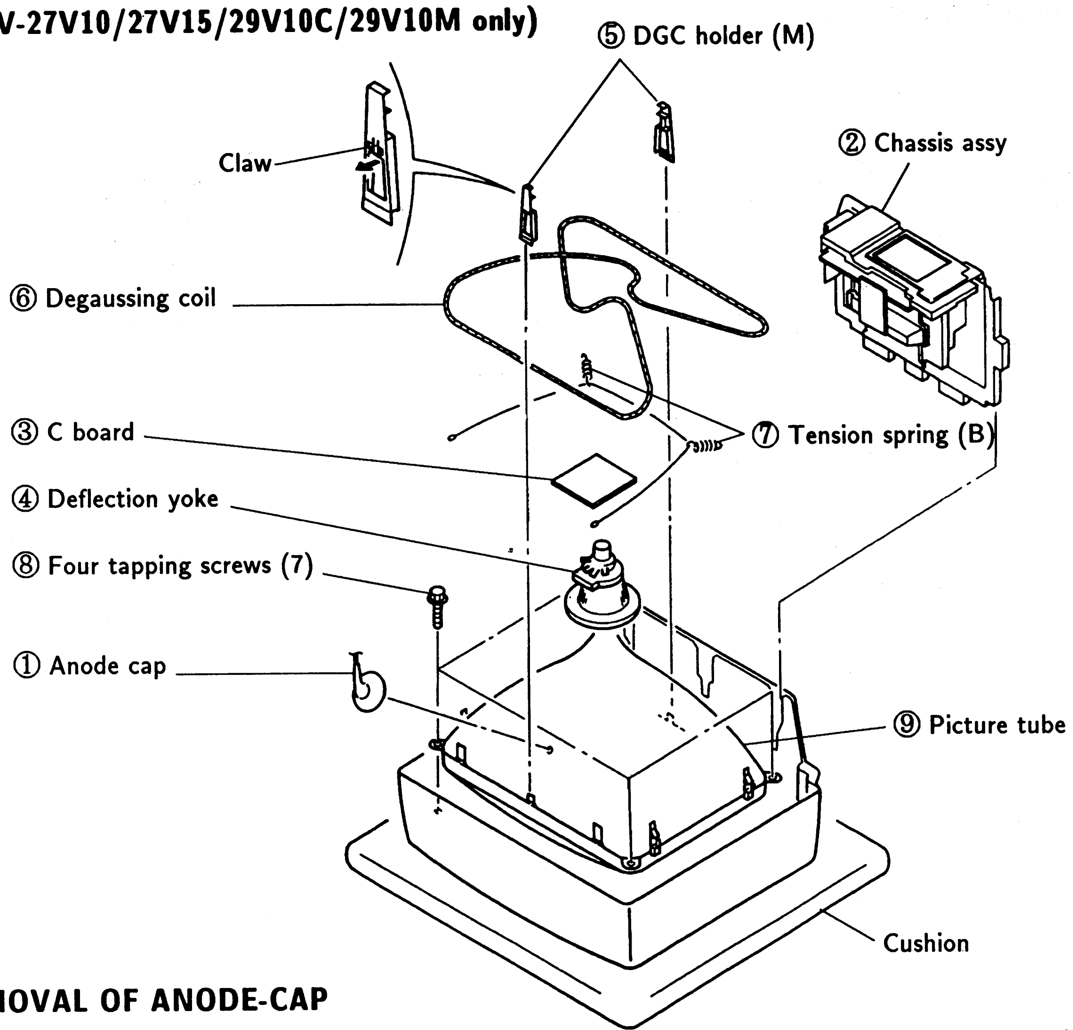

② U board
① Two screws
(P SW (+) screw M3×10)

2-6. EXTENSION CABLE


※ Connect the connector to solder side.
M board
P board
(KV-27V15/KV-32V15 only)
Extension cable
32P
Extension cable
18P
A board
Extension cable
10P
U board
Extension cable
32P
E board
(KV-32V15 only)
Extension cable
10P


Exterior
Extension cable
18P
3-702-558-01
10P
3-702-557-01
32P
3-702-592-01 (A-U)
3-702-593-01 (M-U)

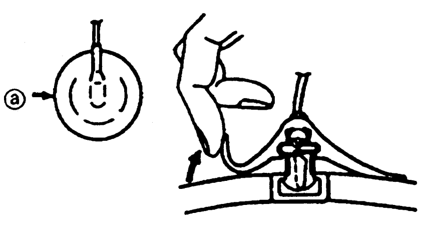
2-7. PICTURE TUBE REMOVAL (1)
(KV-27V10/27V15/29V10C/29V10M only)


⑤ DGC holder (M)
Claw
② Chassis assy
⑥ Degaussing coil
③ C board
⑦ Tension spring (B)
④ Deflection yoke
⑧ Four tapping screws (7)
① Anode cap
⑨ Picture tube
Cushion

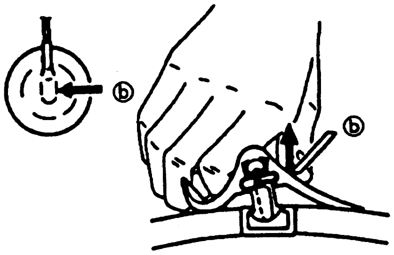
· REMOVAL OF ANODE-CAP

NOTE : Short circuit the anode of the picture tube and the anode cap to the metal chassis, CRT chield or carbon painted on the CRT, after removing the anode.

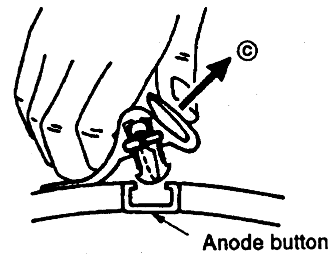
· REMOVING PROCEDURES



① Turn up one side of the rubber cap in the direction indicated by the arrow ⓐ.



② Using a thumb pull up the rubber cap firmly in the direction indicated by the arrow ⓑ.


ⓒ
Anode button

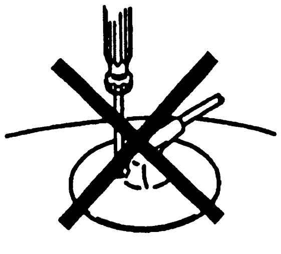
③ When one side of the rubber cap is separated from the anode button, the anode-cap can be removed by turning up the rubber cap and pulling up it in the direction of the arrow ⓒ.

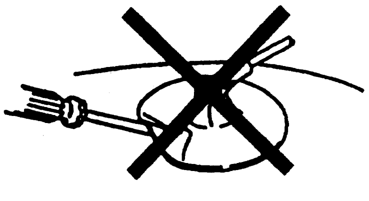
· HOW TO HANDLE AN ANODE-CAP

① Don't hurt the surface of anode-caps with sharp shaped material!

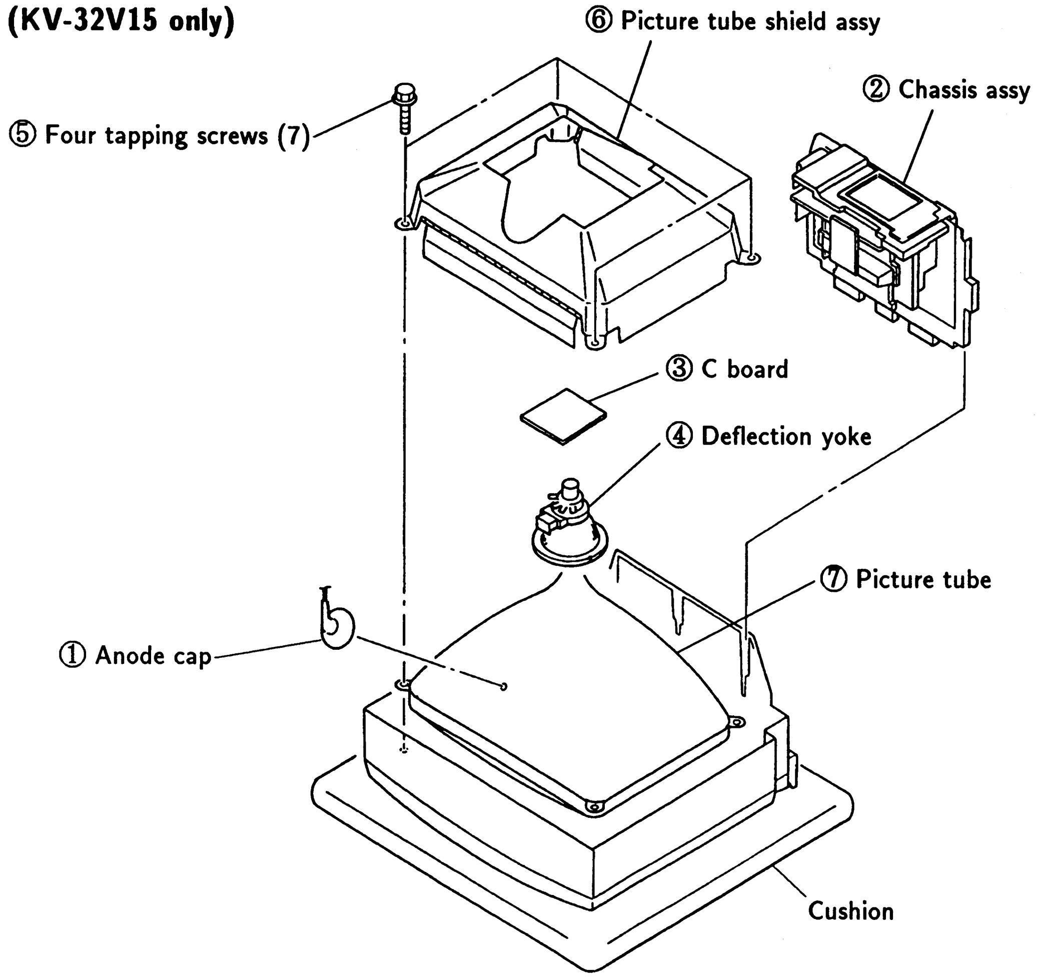
② Don't press the rubber hardly not to hurt inside of anode-caps!
A material fitting called as shatter-hook terminal is built in the rubber.

③ Don't turn the foot of rubber over hardly!
The shatter-hook terminal will stick out or hurt the rubber.





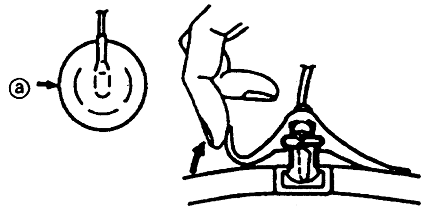
2-7. PICTURE TUBE REMOVAL (2) (KV-32V15 only)


⑥ Picture tube shield assy
② Chassis assy
⑤ Four tapping screws (7)
③ C board
④ Deflection yoke
⑦ Picture tube
① Anode cap
Cushion

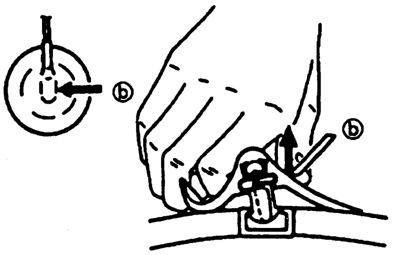
· REMOVAL OF ANODE-CAP

NOTE : Short circuit the anode of the picture tube and the anode cap to the metal chassis, CRT chield or carbon painted on the CRT, after removing the anode.

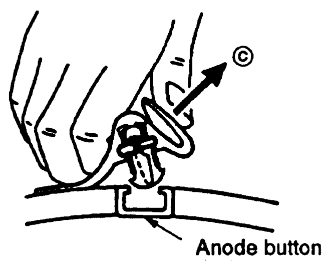
· REMOVING PROCEDURES



① Turn up one side of the rubber cap in the direction indicated by the arrow ⓐ.



② Using a thumb pull up the rubber cap firmly in the direction indicated by the arrow ⓑ.


ⓒ
Anode button

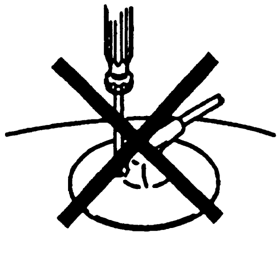
③ When one side of the rubber cap is separated from the anode button, the anode-cap can be removed by turning up the rubber cap and pulling up it in the direction of the arrow ⓒ.

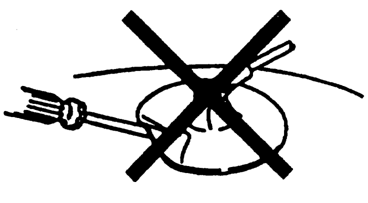
· HOW TO HANDLE AN ANODE-CAP

① Don't hurt the surface of anode-caps with sharp shaped material!

② Don't press the rubber hardly not to hurt inside of anode-caps!
A material fitting called as shatter-hook terminal is built in the rubber.

③ Don't turn the foot of rubber over hardly!
The shatter-hook terminal will stick out or hurt the rubber.





SECTION 3

SET-UP ADJUSTMENTS

- The following adjustments should be made when a complete realignment is required or a new picture tube is installed.
- These adjustments should be performed with rated power supply voltage unless otherwise noted.

Controls and switch should be set as follows unless otherwise noted :

PICTURE control . . . . RESET
BRIGHTNESS control . . . . center

Perform the adjustments in order as follows :

1. Beam Landing
2. Convergence
3. Focus
4. White Balance

Note : Test Equipment Required.

1. Color-bar/Pattern Generator
2. Degausser
3. Oscilloscope

Preparations :

- In order to reduce the influence of geomagnetism on the set's picture tube face it east or west.
- Switch on the set's power and degauss with the degausser.

3-1. BEAM LANDING

1. Input the white signal with the pattern generator.
   Contrast } normal
   Bightness }
2. Set the pattern generator raster signal to green.
3. Move the deflection yoke to the rear and adjust with the purity control so that the green is at the center and the blue and the red take up equally sized areas on each side.
   (See Figures 3-1 through 3-3.)
4. Move the deflection yoke forward and adjust so that entire screen is green. (See Figure 3-1.)
5. Switch the raster signal to blue, then to red and verify the condition.
6. When the position of the deflection yoke has been decided, fasten the deflection yoke with the screws.
7. If the beam does not land correctly in all the corners, use a magnet to adjust it.
   (See Figure 3-4.)

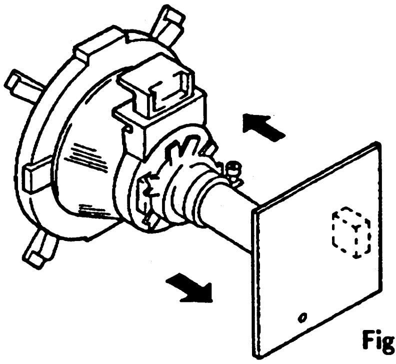


Fig.3-1

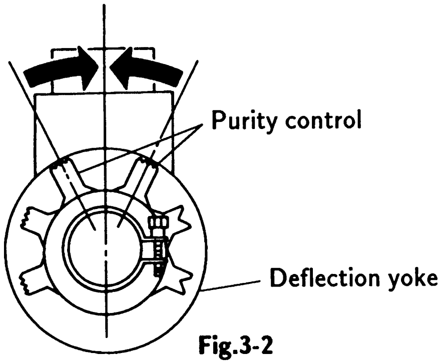

Purity control
Deflection yoke

Fig.3-2

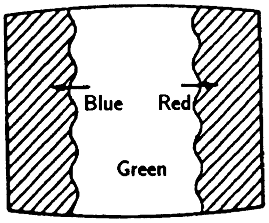

Blue
Red
Green

Fig.3-3

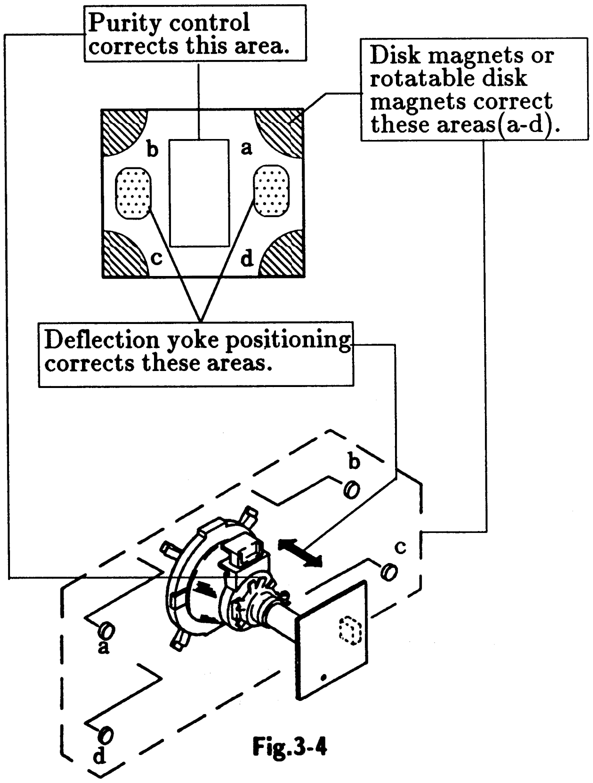

Purity control corrects this area.
Disk magnets or rotatable disk magnets correct these areas(a-d).
b
a
c
d
Deflection yoke positioning corrects these areas.
b
c
a
d

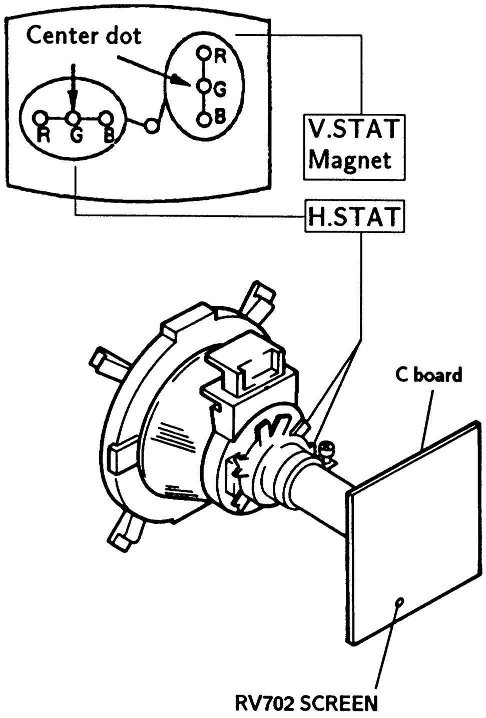
Fig.3-4

3-2. CONVERGENCE

Preparation :

- Before starting this adjustment, adjust the focus, horizontal size, and vertical size.
- Minimize the brightness setting.
- Provide dot pattern.

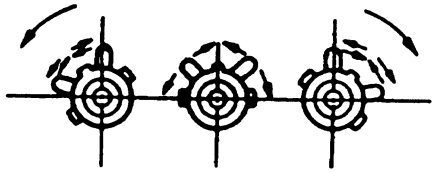
(1) **Horizontal and Vertical Static Convergence**



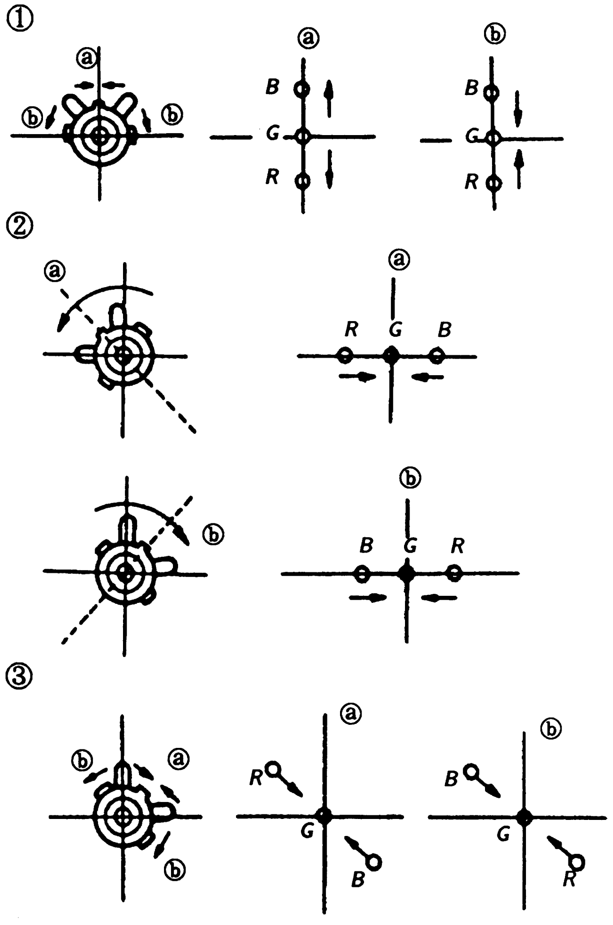
1. V. STAT Adjustment
   Turn the V. STAT tabs to left or right so that the vertical red, green and blue dots converge in the center of the screen.
2. H. STAT Adjustment
   Simultaneously turn the 2 V. STAT tabs in the same direction so that the horizontal red, green and blue dots converge in the center of the screen.

Note : Do not move the purity tab during adjustment with the V. STAT tab. If the purity tab is moved, the convergence condition will change, and possibly lead to misadjustment of a different yoke.

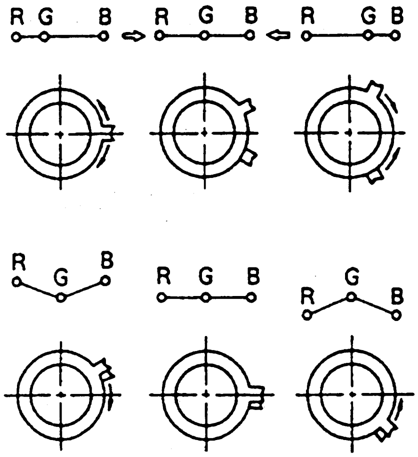
- Tilt the V.STAT tabs and adjust the static convergence by turning the V.STAT tabs to the left or right.



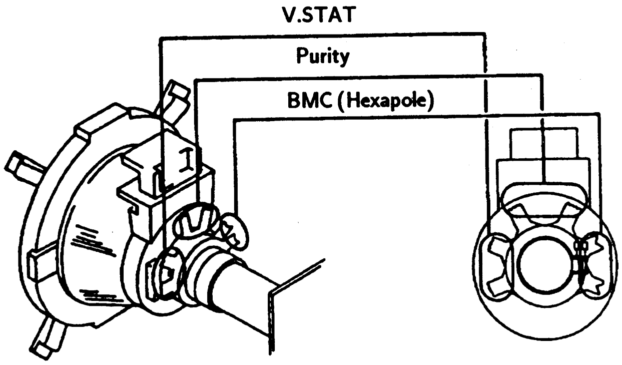
4. The V.STAT tabs are moved in the direction of the ⓐ and ⓑ arrows and the red, green and blue points move as shown below.



- Operation of BMC (Hexapole) Magnet



- The respective dot positions resulting from moving each magnet interact, so be sure to perform adjustment while tracking.
  Use the V.STAT tabs to adjust the red, green, and blue dots so they coincide at the center of screen (by moving the dots in the horizontal direction).



- **Y separation axis correction magnet adjustment**

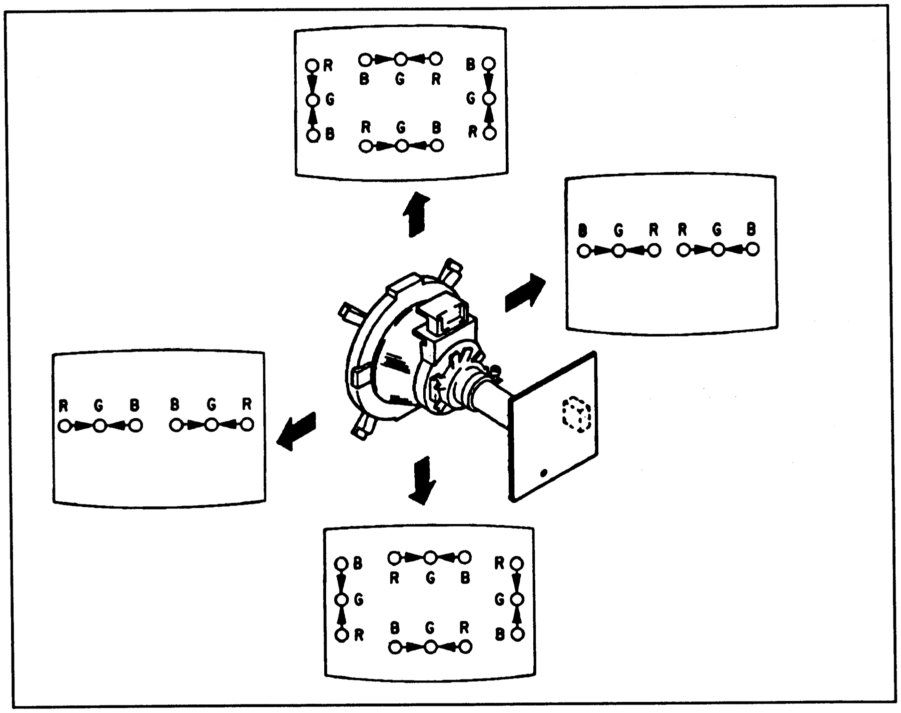
1. Receive the cross-hatch signal, and adjust [PIX] to “MIN” and [BRT] to “standard”.
2. Adjust the deflection yoke to the upright condition when it hits the CRT.
3. Adjust so that the Y separation axis correction magnet on the neck assembly is symmetrical at the top and bottom (open state).
4. Return the deflection yoke to its original position.

(2) **Dynamic Convergence Adjustment**

Preparations :

- Before starting this adjustment, adjust the horizontal static convergence and the vertical static convergence.

1. Slightly loosen the deflection yoke screws.
2. Remove the deflection yoke spacer.
3. Move the deflection yoke as shown in the figure below and optimize the convergence.
4. Tighten the deflection yoke screws.
5. Install the defelection yoke spacer.

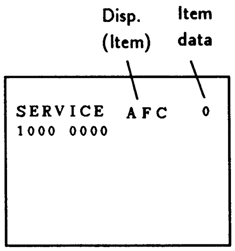


(3) Dynamic Convergence Circuit Adjustment

SERVICE MODE PROCEDURE

1. Standby mode.(Power off)
2. DISPLAY → 5 → VOL (+) → POWER on the Remote Commander. (Press each button within a second.)

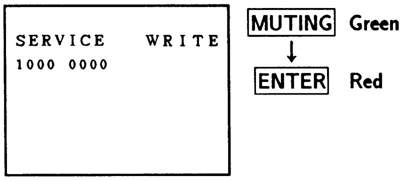
SERVICE ADJUSTMENT MODE IN



```
SERVICE  AFC   0
1000 0000
```

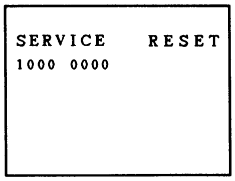
3. The CRT displays the item Being adjusted.
4. Press 1 or 4 on the Remote Commander to select the item.
5. Press 3 or 6 on the Remote Commander to change the data.
6. Press MUTING then ENTER to write into memory.

SERVICE ADJUSTMENT MODE MEMORY



```
SERVICE   WRITE
1000 0000
```

7. Press 8 then ENTER on the Remote Commander to initlalize.



```
SERVICE   RESET
1000 0000
```

Factory original setting

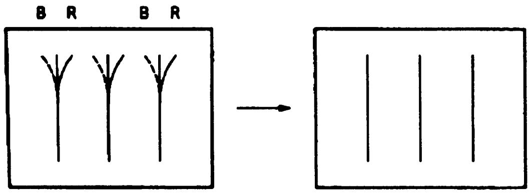
8. Turn set off and on to exit.

- Set to Service Mode.
- Input a cross-hatch signal.
- Press 1 and 4 serect an item of adjustments.
- Adjust 3 and 6 to the best picture.

No.	Disp.	Item	Ave.Data
40	UYBO	Upper Y-Bow	31
41	LYBO	Lower Y-Bow	25
42	HAMP	H. Amp	33
43	HTIL	H. Tilt	33
44	UCBO	Upper C-Bow	38
45	UTIL	Upper Tilt	40
46	LCBO	Lower C-Bow	41
47	LTIL	Lower Tilt	46
48	DCSH	DC Shift	37

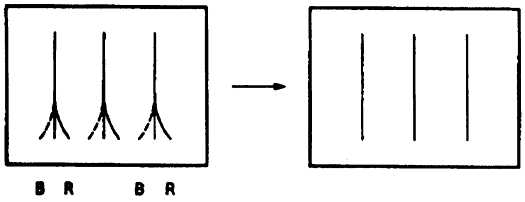
U. YBOW

Select UYBO with 1 and 4



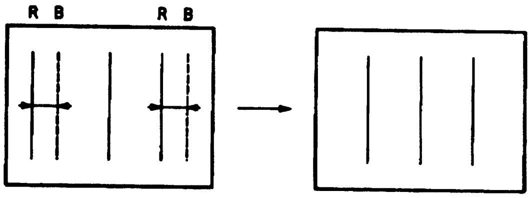
L. YBOW

Select LYBO with 1 and 4



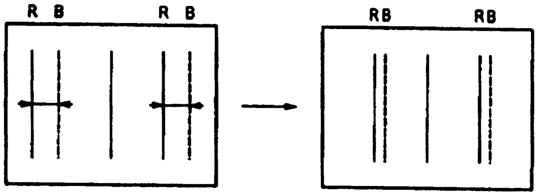
H. AMP

Select HAMP with 1 and 4



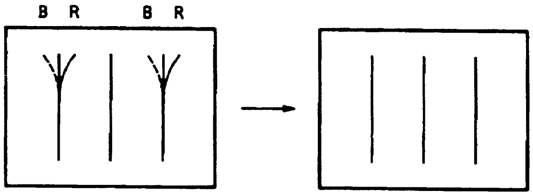
H. TILT

Select HTILT with $\boxed{1}$ and $\boxed{4}$



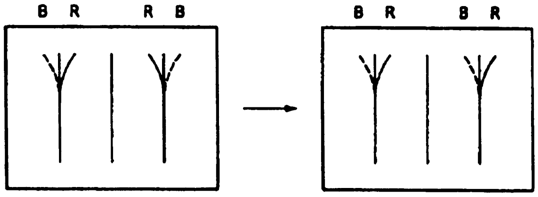
U. CBOW

Select UCBO with $\boxed{1}$ and $\boxed{4}$



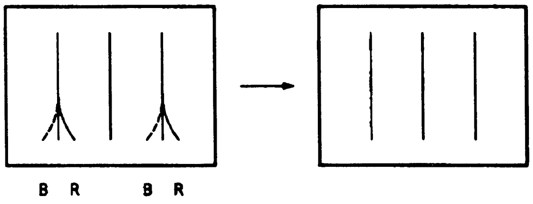
U. TILT

Select UTIL with $\boxed{1}$ and $\boxed{4}$



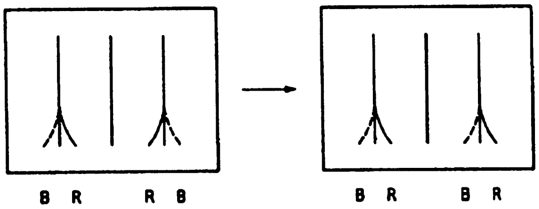
L. CBOW

Select LCBO with $\boxed{1}$ and $\boxed{4}$

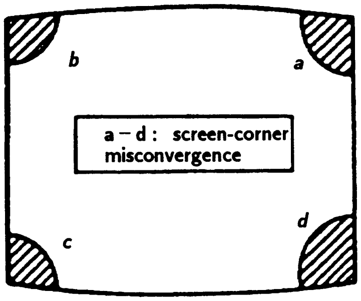


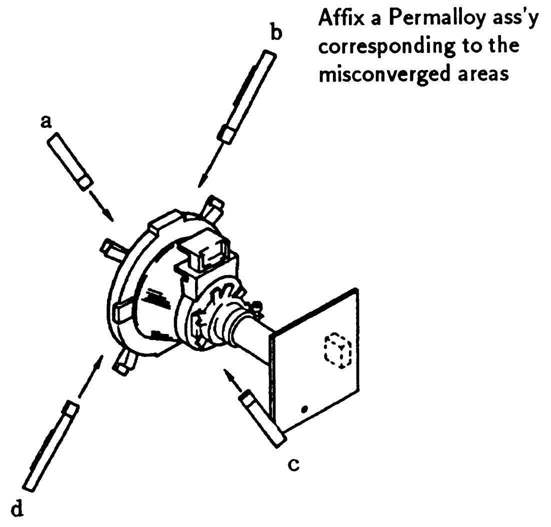
L. TILT

Select L. TIL with $\boxed{1}$ and $\boxed{4}$



(4) Screen-corner Convergence


b
a
a – d : screen-corner misconvergence
c
d

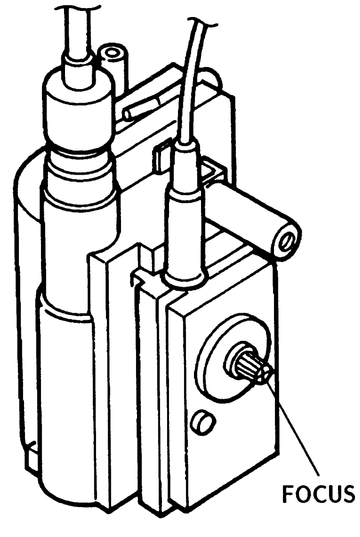


Affix a Permalloy ass'y corresponding to the misconverged areas

Permalloy assembly

3-3. FOCUS ADJUSTMENT

Adjust FOCUS control on the flyback transformer for a best focus.



FLYBACK TRANSFORMER (T501)

3-4. G2 (SCREEN) AND WHITE BALANCE ADJUSTMENTS

1. G 2 (SCREEN) ADJUSTMENT (RV 702)

1. Set the PICTURE and BRIGHTNESS to normal.
2. Apply DC voltage of 170 V to the cathodes of R,G and B from DC stabilized power source.
3. While watching the picture, adjust the G2 control (RV 702) to the just the retrace line disappears.

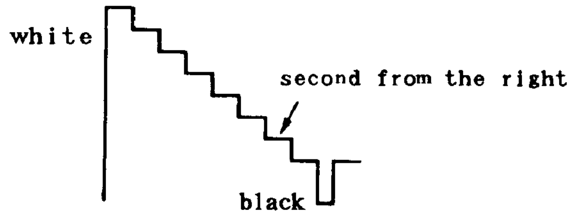
2. WHITE BALANCE ADJUSTMENTS

No.	Disp.	Item	Ave. Data
14	GAMP	Green Amp	20
15	BAMP	Blue Amp	17
16	GCUT	Green Cut-off	7
17	BCUT	Blue Cut-off	8
22	SBRT	Sub Bright	35

1. Input an entire white signal.
2. Set to service adjustment mode.
3. Set the PICTURE and BRIGHT to minimum.
4. Adjust with SBRT if necessary.
5. Select G CUT and B CUT with $\boxed{1}$ and $\boxed{4}$.
6. Adjust with $\boxed{3}$ and $\boxed{6}$ for the best white balance.
7. Set the PICTURE and BRIGHT to maximum.
8. Select GAMP and BAMP with $\boxed{1}$ and $\boxed{4}$
9. Adjust with $\boxed{3}$ and $\boxed{6}$ for the best white balance.
10. Write into the memory by pressing $\boxed{\text{MUTING}}$ then $\boxed{\text{ENTER}}$.

3. SUB BRIGHT ADJUSTMENT

1. Set to service mode.
2. Input a staircase signal of black and white from the pattern generator.
3. BRIGHTNESS ··· RESET
   PICTURE ········· minimum
4. Select SBRT with $\boxed{1}$ and $\boxed{4}$, and adjust SUB BRIGHT level with $\boxed{3}$ and $\boxed{6}$ so that the stripe second from the right is dimly lit.



SECTION 4
SAFETY RELATED ADJUSTMENTS

⊠ R511 CONFIRMATION METHOD (HOLD-DOWN CONFIRMATION) AND READJUSTMENTS

The following adjustments should always be performed when replacing the following components (marked with ◪ on the schematic diagram).
PM501, R338, R511, R632, R645, R650

①

1. Preparation before confirmation
   1) Remove R635 on the D board and connect a variable resistor (RV1: about 4.7kΩ-10kΩ) between pin ① of IC601 and B+ line.
   2) Supply 130±2.0V AC to with variable autotransformer.
2. Hold-down operation confirmation
   1) Turn the POWER switch ON, and receive entirely white signals and adjust ABL current to 1760±50μA with PICTURE and BRIGHT etc controls.
   2) Increase B+ line voltage gradually by adjusting the resistor of RV1. Confirm that the minimum voltage is less than 142.5V DC (27 inch) 140.0V DC (32 inch) whereby the raster disappears during operation of hold-down circuit.
      NOTE: When the hold-down circuit starts operating, switch OFF the POWER of the set immediately.
   3) Turn the POWER switch ON, and receive dot signals and adjust ABL current to 160±50μA with PICTURE and BRIGHT etc controls.
   4) Increase B+ line voltage gradually by adjusting the resistor of RV1. Confirm that the minimum voltage is less than 145.0V DC (27 inch), 143.5V DC (32 inch) whereby the raster disappears during operation of hold-down circuit.
      NOTE: When the hold-down circuit starts operating, switch OFF the POWER of the set immediately.
3. Hold-down readjustment
   When step 2 is not satisfied, readjustment should be performed by altering the resistance value of R511 (a component marked with ⊠).

⊠ R524 CONFIRMATION METHOD (HOLD-DOWN CONFIRMATION) AND READJUSTMENTS

The following adjustments should always be performed when replacing the following components (marked with ◪ on the schematic diagram).
IC601, PM501, D504, C598, R338, R509, R524, R632, R635, R645, T501

②

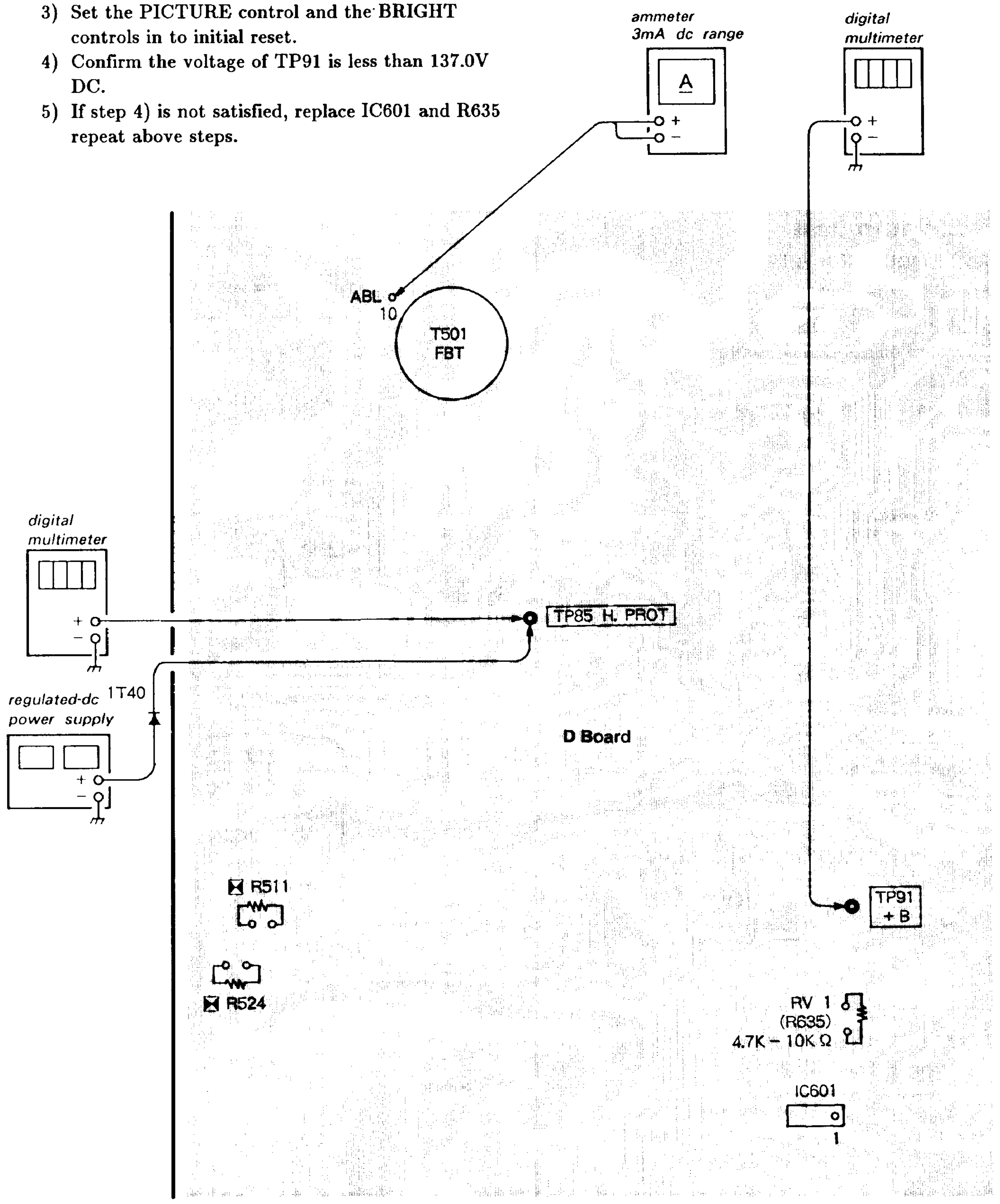
1. Preparation before confirmation
   1) Turn the POWER switch ON, and receive entirely white signals and set the PICTURE and BRIGHT controls to maximum.
   2) Confirm that voltage of the check terminal of TP-85 (D BOARD) is more than 114.0V DC (27 inch) 122.3V DC (32inch) when the set is operating normally with 120.0±2.0V AC supply.
2. Hold-down operation confirmation
   1) Turn the POWER switch ON, and receive entirely white signals and adjust ABL current to 1760±50μA with PICTURE and BRIGHT etc controls .
   2) Apply DC voltage of over 130.0V DC gradually to the check terminal of TP-85 (D BOARD) via 1T40 from the DC stabilized power source. Confirm that the minimum voltage is less than 137.5V DC (27inch) 143.5V DC (32inch) whereby the raster disappears during operation of hold-down circuit.
      NOTE: When the hold-down circuit starts operating, switch OFF the POWER of the set immediately.
   3) Turn the POWER switch ON, and receive dot signals and adjust ABL current to 160±50μA with PICTURE and BRIGHT etc controls .
   4) Apply DC voltage of over 130.0V gradually to the check terminal of TP-85 (D BOARD) via 1 T40 from the DC stabilized power source. Confirm that the minimum voltage is less than 138.0V DC (27inch) 144.1V DC (32inch) whereby the raster disappears during operation of hold-down circuit.
      NOTE: When the hold-down circuit starts operating, switch OFF the POWER of the set immediately.
3. Hold-down readjustment
   When step 2 is not satisfied, readjustment should be performed by altering the resistance value of R524 (a component marked with ⊠).

B+ VOLTAGE CONFIRMATION

The following adjustments should always be performed when replacing IC601 and R635.

1) Supply $130\pm^{2.0}_{0.0}$V AC to with variable autotransformer.
2) Receive entirely monoscope signal.
3) Set the PICTURE control and the BRIGHT controls in to initial reset.
4) Confirm the voltage of TP91 is less than 137.0V DC.
5) If step 4) is not satisfied, replace IC601 and R635 repeat above steps.

* Use a digital multimeter whose input impedance over 100 MΩ when confirming the voltage of the protector terminal of TP85.



SECTION 4
SAFETY RELATED ADJUSTMENTS

⊟ R511 CONFIRMATION METHOD (HOLD-DOWN CONFIRMATION) AND READJUSTMENTS

The following adjustments should always be performed when replacing the following components (marked with ◪ on the schematic diagram).
PM501, R338, R511, R632, R645, R650

①

1. Preparation before confirmation
   1) Remove R635 on the D board and connect a variable resistor (RV1: about 4.7kΩ-10kΩ) between pin ① of IC601 and B+ line.
   2) Supply 130±2.0V AC to with variable autotransformer.

2. Hold-down operation confirmation
   1) Turn the POWER switch ON, and receive entirely white signals and adjust ABL current to 1700±50μA with PICTURE and BRIGHT etc controls.
   2) Increase B+ line voltage gradually by adjusting the resistor of RV1. Confirm that the minimum voltage is less than 142.5V DC (27 inch) 140.0V DC (32 inch) whereby the raster disappears during operation of hold-down circuit.
      NOTE: When the hold-down circuit starts operating, switch OFF the POWER of the set immediately.
   3) Turn the POWER switch ON, and receive dot signals and adjust ABL current to 160±50μA with PICTURE and BRIGHT etc controls.
   4) Increase B+ line voltage gradually by adjusting the resistor of RV1. Confirm that the minimum voltage is less than 145.0V DC (27 inch), 143.5V DC (32 inch) whereby the raster disappears during operation of hold-down circuit.
      NOTE: When the hold-down circuit starts operating, switch OFF the POWER of the set immediately.

3. Hold-down readjustment

   When step 2 is not satisfied, readjustment should be performed by altering the resistance value of R511 (a component marked with ⊟).

⊟ R524 CONFIRMATION METHOD (HOLD-DOWN CONFIRMATION) AND READJUSTMENTS

The following adjustments should always be performed when replacing the following components (marked with ◪ on the schematic diagram).
IC601, PM501, D504, C598, R338, R509, R524, R632, R635, R645, T501

②

1. Preparation before confirmation
   1) Turn the POWER switch ON, and receive entirely white signals and set the PICTURE and BRIGHT controls to maximum.
   2) Confirm that voltage of the check terminal of TP-85 (D BOARD) is more than 114.0V DC (27 inch) 122.3V DC (32inch) when the set is operating normally with 120.0±2.0V AC supply.

2. Hold-down operation confirmation
   1) Turn the POWER switch ON, and receive entirely white signals and adjust ABL current to 1700±50μA with PICTURE and BRIGHT etc controls .
   2) Apply DC voltage of over 130.0V DC gradually to the check terminal of TP-85 (D BOARD) via 1T40 from the DC stabilized power source. Confirm that the minimum voltage is less than 137.5V DC (27inch) 143.5V DC (32inch) whereby the raster disappears during operation of hold-down circuit.
      NOTE: When the hold-down circuit starts operating, switch OFF the POWER of the set immediately.
   3) Turn the POWER switch ON, and receive dot signals and adjust ABL current to 160±50μA with PICTURE and BRIGHT etc controls .
   4) Apply DC voltage of over 130.0V gradually to the check terminal of TP-85 (D BOARD) via 1 T40 from the DC stabilized power source. Confirm that the minimum voltage is less than 138.0V DC (27inch) 144.1V DC (32inch) whereby the raster disappears during operation of hold-down circuit.
      NOTE: When the hold-down circuit starts operating, switch OFF the POWER of the set immediately.

3. Hold-down readjustment

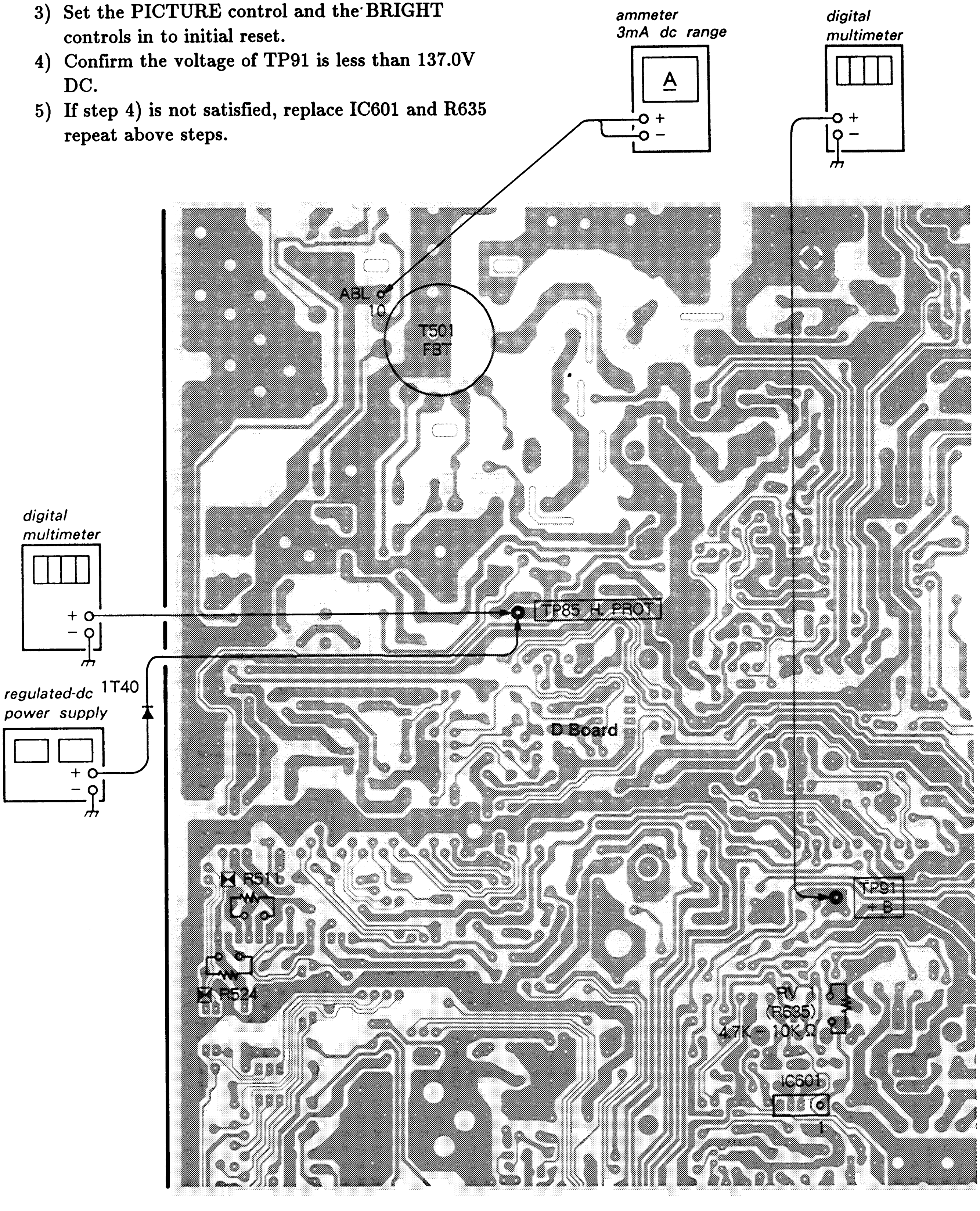
   When step 2 is not satisfied, readjustment should be performed by altering the resistance value of R524 (a component marked with ⊟).

B+ VOLTAGE CONFIRMATION

The following adjustments should always be performed when replacing IC601 and R635.

1) Supply $130\pm^{2.0}_{0.0}$V AC to with variable autotransformer.
2) Receive entirely monoscope signal.
3) Set the PICTURE control and the BRIGHT controls in to initial reset.
4) Confirm the voltage of TP91 is less than 137.0V DC.
5) If step 4) is not satisfied, replace IC601 and R635 repeat above steps.

* Use a digital multimeter whose input impedance over 100 MΩ when confirming the voltage of the protector terminal of TP85.


ammeter
3mA dc range
A
+
−
digital
multimeter
+
−
ABL
10
T501
FBT
digital
multimeter
+
−
TP85 H. PROT
regulated-dc
power supply
1T40
+
−
D Board
R511
R524
TP91
+B
RV 1
(R635)
4.7K − 10K Ω
IC601

SECTION 5
CIRCUIT ADJUSTMENTS

5-1. ELECTRICAL ADJUSTMENT BY REMOTE COMMANDER

Use of Remote Commander can be performed circuit adjustments about this model.

NOTE : Test Equipment Required.

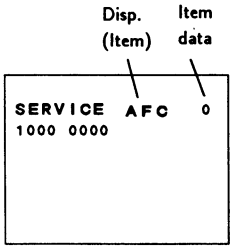
1. Pattern Generator
2. Frequency counter
3. Digital multimeter
4. Audio OSC

1. METHOD OF SETTING THE SERVICE ADJUSTMENT MODE

SERVICE MODE PROCEDURE

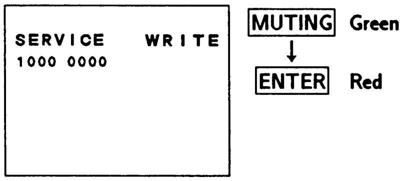
1. Standby mode.(Power off)
2. DISPLAY → 5 → VOL (+) → POWER on the Remote Commander. (Press each button within a second.)

SERVICE ADJUSTMENT MODE IN

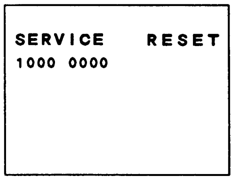

Disp.
(Item)
Item
data
SERVICE AFC 0
1000 0000

3. The CRT displays the item Being adjusted.
4. Press 1 or 4 on the Remote Commander to select the item.
5. Press 3 or 6 on the Remote Commander to change the data.
6. Press MUTING then ENTER to write into memory.

SERVICE ADJUSTMENT MODE MEMORY


SERVICE WRITE
1000 0000
MUTING Green
ENTER Red

7. Press 8 then ENTER on the Remote Commander to initialize.


SERVICE RESET
1000 0000

Carry out step 7) when adjusting IDs 0 to 4 and when replacing and adjusting IC102.

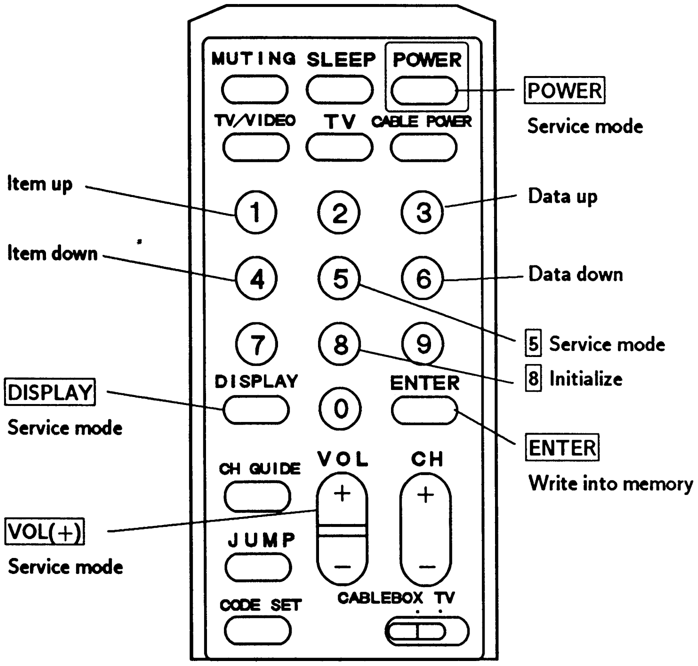
Factory original setting

8. Turn set off and on to exit.

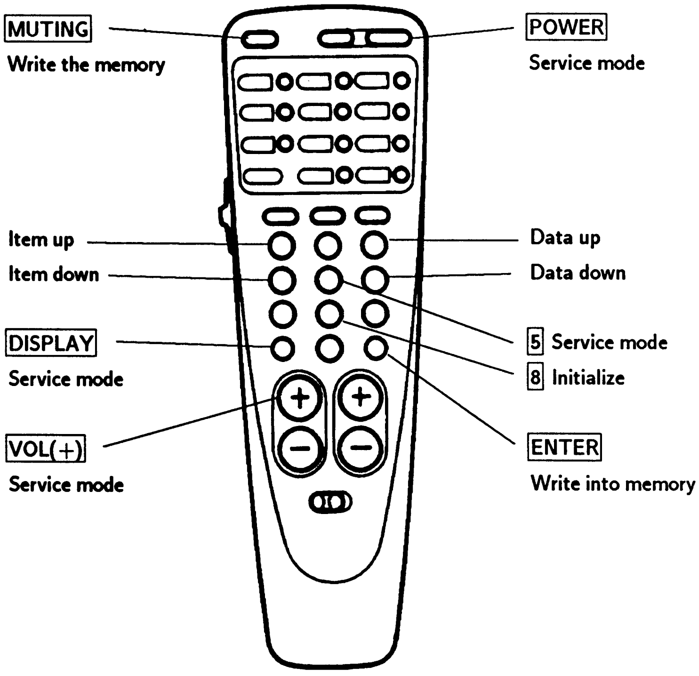
2. MEMORY WRITE CONFIRMATION METHOD

1. After adjustment, pull out the plug from AC outlet, and next place, plug in AC outlet again.
2. Turn the power switch ON and set to Service Mode.
3. Call the adjusted items again, confirm they were adjusted.

3. ADJUST BUTTONS AND INDICATOR


MUTING
SLEEP
POWER
TV/VIDEO
TV
CABLE POWER
1
2
3
4
5
6
7
8
9
DISPLAY
0
ENTER
CH GUIDE
VOL
CH
JUMP
CODE SET
CABLEBOX TV
POWER
Service mode
Item up
Data up
Item down
Data down
5 Service mode
8 Initialize
DISPLAY
Service mode
ENTER
Write into memory
VOL(+)
Service mode

RM-Y117


MUTING
Write the memory
POWER
Service mode
Item up
Item down
Data up
Data down
DISPLAY
Service mode
5 Service mode
8 Initialize
VOL(+)
Service mode
ENTER
Write into memory

RM-Y121

4. AN ITEM OF ADJUSTMENTS

No.	Disp.	Item	Data range	Ave. data (27 inch)	Ave. data (32 inch)
1	AFC	AFC Loop Gain	0~3	* 0	* 0
2	HFRE	H. Frequency	0~127	70	70
3	VFRE	V. Frequency	0~31	14	14
4	VPOS	V. Center	0~31	17	17
5	VSIZ	V. Size	0~63	28	28
6	VLIN	V. Linearity	0~15	8	8
7	VSCO	V. Correction	0~15	6	6
8	HPOS	H. Center	0~15	6	6
9	HSIZ	H. Size	0~31	31	31
10	PAMP	Pin Amp	0~31	24	24
11	CPIN	Corner Pin	0~7	3	3
12	PPHA	Pin Phase	0~15	6	6
13	VCOM	V. Compensation	0~7	* 2	* 2
14	GAMP	Green Amp	0~31	20	20
15	BAMP	Blue Amp	0~31	17	17
16	GCUT	Green Cut Off	0~15	7	7
17	BCUT	Blue Cut Off	0~15	8	8
18	CROM	Chroma Trap	0~63	* 28	* 28
19	SPIX	Sub Contrast	0~63	20	20
20	SHUE	Sub Hue	0~63	33	33
21	SCOL	Sub Color	0~63	32	32
22	SBRT	Sub Bright	0~63	35	35
23	RGBP	RGB Picture	0~63	* 30	* 10
24	SHAP	Sharpness	0~15	* 10	7
25	VSMO	V Pull in Range	0, 1	* 0	* 0
26	REF	Refference line	0~3	* 2	* 2
27	ROFF	Red Out	0, 1	1	1
28	GOFF	Green Out	0, 1	1	1
29	BOFF	Blue Out	0, 1	1	1
30	ABLM	ABL Mode	0, 1	* 0	* 0
31	NOTC	Notch On/Off	0, 1	* 1	* 1
32	DRGB	OSD intensity	0, 1	* 0	* 0
33	DISP	Display Position	0~63	40	40
34	DPDV	Lumipon (dpdv)	0~3	* 1	* 1
35	MPIC	Lumipon (depth)	0~63	* 48	* 48
36	SVOL	Sub Volume	0~15	* 0	* 0
37	SBAL	Sub Balance	0~15	7	7
38	BASS	Sub Bass	0~15	* 8	* 8
39	TRE	Sub Treble	0~15	* 8	* 8
40	UYBO	Upper Y. Bow	0~63	31	31
41	LYBO	Lower Y. Bow	0~63	25	25
42	HAMP	H. Amp	0~63	33	33
43	HTIL	H. Tilt	0~63	33	33
44	UCBO	Upper C. Bow	0~63	38	38
45	UTIL	Upper Tilt	0~63	40	40
46	LCBO	Lower C. Bow	0~63	41	41
47	LTIL	Lower Tilt	0~63	46	46
48	DCSH	DC. Shift	0~63	37	37
49	PHPO	PinP H Position	0~127	76	76
50	PHUE	PinP Hue	0~127	* 0	* 0
51	ID-0	Model ID	0~127	by Model	by Model
52	ID-1	Model ID	0~127	by Model	by Model
53	ID-2	Model ID	0~127	by Model	by Model
54	ID-3	Model ID	0~127	by Model	by Model
55	ID-4	Model ID	0~127	by Model	by Model

* : Set-up value

Note : No.from 1 to 55 is to show adjusment order.

```
SERVICE     ID 0   64
1000 0000   1000 000
```

Please adjust the function values as shown below when IC 102 on M board was replaced.

KV-27V 10 (US/CND)

No.	Disp.	Disp.	Data
51	ID-0	1 1 1 1 0 0 0	120
52	ID-1	1 1 1 1 1 1 1	127
53	ID-2	1 0 0 1 0 0 0	72
54	ID-3	0 0 0 0 0 0 0	0
55	ID-4	0 0 1 0 0 0 1	17

KV-27V 15 (US/CND)

No.	Disp.	Disp.	Data
51	ID-0	1 1 1 1 0 0 0	120
52	ID-1	1 1 1 1 1 1 1	127
53	ID-2	1 0 0 1 0 0 0	72
54	ID-3	1 0 0 0 0 0 0	64
55	ID-4	0 0 1 0 0 1 1	19

KV-29V 10 C (WP)/29 V 10 M (E)

No.	Disp.	Disp.	Data
51	ID-0	1 1 1 1 0 0 0	120
52	ID-1	1 1 1 1 1 1 1	127
53	ID-2	0 1 0 0 0 0 0	32
54	ID-3	0 0 0 0 0 0 0	0
55	ID-4	0 0 1 0 0 0 1	17

KV-32 V 15 (US/CND)

No.	Disp.	Disp.	Data
51	ID-0	1 1 1 1 0 0 0	120
52	ID-1	1 1 1 1 1 1 1	127
53	ID-2	1 0 0 1 0 0 0	72
54	ID-3	0 1 0 0 1 0 0	36
55	ID-4	0 0 1 0 0 1 1	19

5-2. M BOARD ADJUSTMENTS

H.FREQUENCY ADJUSTMENT (HFRE)

1. Input a color-bar signal.
2. Set to Service adjustment Mode.
3. Connect a frequency counter to CN131 Pin⑬ (H. DRIVE) connector and ground.
4. Call the item of AFC, set to 3 level (free run).
5. Select HFRE with 1 and 4.
6. Adjust with 3 and 6 for the 15734± 60Hz.
7. Call the item of AFC again, adjust the level“ 0 ”.
8. Write into the memory by pressing MUTING then ENTER.

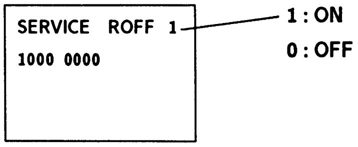
V.FREQUENCY ADJUSTMENT (VFRE)

1. Select video 1 with no connecting the signal.
2. Set to Service adjustment Mode.
3. Connect the frequency counter across connectorCN131 Pin⑦ (V. DRIVE) connector and ground.
4. Select VFRE with 1 and 4.
5. Adjust with 3 and 6 for the 56 ±0.5Hz.
6. Write the memory by pressing MUTING then ENTER .

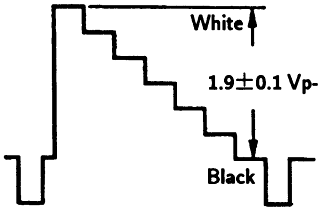
SUB CONTRAST ADJUSTMENT (SPIX)

1. Input a color-bar signal.
2. Set to Service adjustment Mode.
3. Set the conditions as follows.

PICTURE ·········	MAX
COLOR ·········	MIN
BRIGHT ·········	CENTER
R OFF ·········	ON (1)
G OFF ·········	OFF (0)
B OFF ·········	OFF (0)


SERVICE ROFF 1
1000 0000

4. Connect an oscilloscope to CN703 Pin① (R OUT) of C board and ground.
5. Select SPIX with 1 and 4.
6. Adjust with 3 and 6 for the 1.9±0.1Vp-p.

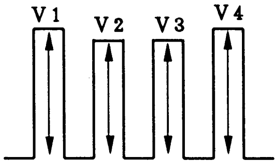


7. Write the memory by pressing MUTING then ENTER .
8. Return the following back to normal after adjustment.

PICTURE ·········	MAX
BRIGHT ·········	CENTER
COLOR ·········	CENTER
R OFF ·········	ON
G OFF ·········	ON
B OFF ·········	ON

SUB HUE, SUB COLOR ADJUSTMENT (SHUE, SCOL)

1. Input a color-bar signal.
2. Set to service adjustment mode.
3. Connect an oscilloscope to CN703 Pin③ (B OUT) of C board.
4. Select SHUE and SCOL with 1 and 4.
5. Adjust with 3 and 6 for the V1=V4 (SCOR) and V2 =V3 (SHUE).



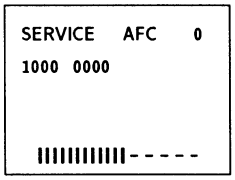
6. Increase the data of SCOL by 3 steps.
7. Write into the memory by pressing MUTING then ENTER .

SUB BARANCE ADJUSTMENT (SBAL)

1. Input a stereo signal.
2. Set to service adjustment mode.
3. Select SBAL with 1 and 4.
4. Adjust with 3 and 6 for the best sound balance
5. Write into the memory by pressing MUTING then ENTER .

DISPLAY POSITION ADJUSTMENT (DISP)

1. Input a color-bar signal.
2. Set to service adjustment Mode.
3. Select DISP with 1 and 4.
4. Adjust with 3 and 6 for the bar center.
5. Write the memory by pressing MUTING then ENTER .



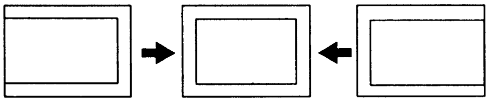
```
SERVICE   AFC   0
1000  0000

IIIIIIIIIII-----
```

H.CENTER ADJUSTMENT (H POS)

Note: Perform this adjustment after H.FREQUENCY ADJUSTMENT (HFRE) .

1. Input a cross-hatch signal.
2. Set the Service adjustment mode.
3. Select HPOS with 1 and 4 .
4. Adjust with 3 and 6 to the best horizontal center.
5. Write into the memory by pressing MUTING then ENTER .

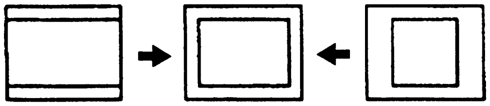
H. CENTER (HPOS)



H.SIZE ADJUSTMENT (HSIZ)

1. Input a cross-hatch signal.
2. Set to service adjustment Mode.
3. Select HSIZ with 1 and 4.
4. Adjust with 3 and 6 for best horizontal size.
5. Write into the memory by pressing MUTING then ENTER .

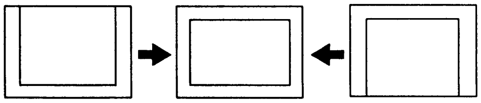
H. SIZE (HSIZ)



V.CENTER ADJUSTMENT (VPOS)

1. Input a cross-hatch signal.
2. Set to service adjustment Mode.
3. Select VPOS with 1 and 4.
4. Adjust with 3 and 6 for the best vertical senter.
5. Write into the memory by pressing MUTING then ENTER .

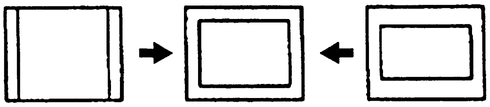
V. CENTER (VPOS)



V.SIZE ADJUSTMENT (VSIZ)

1. Input a cross-hatch signal.
2. Set to service adjustment Mode.
3. Select VSIZ with 1 and 4.
4. Adjust with 3 and 6 for the best vertical size.
5. Write into the memory by pressing MUTING then ENTER .

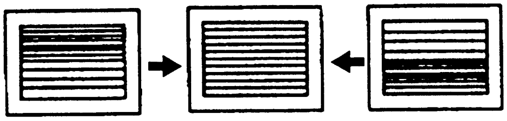
V. SIZE (VSIZ)



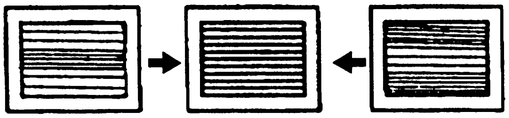
V LINEARITY(VLIN), VS CORRECTION(VSCO), PIN AMP(PAMP), CORNER PIN(CPIN), AND PIN PHASE(PPHA) ADJUSTMENTS

1. Input a cross-hatch signal.
2. Set to Service adjustment Mode.
3. Select VLIN, VSCO, PAMP, CPIN, and PPHA with 1 and 4.
4. Adjust with 3 and 6 for the best picture.
5. Write the memory byPressing MUTING then ENTER.

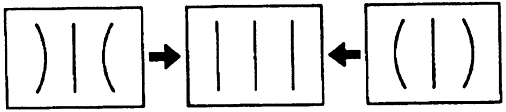
V LINEARITY (VLIN)



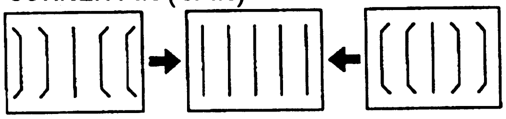
VS CORRECTION (VSCO)



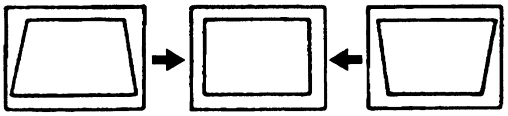
PIN AMP (PAMP)



CORNER PIN (CPIN)



PIN PHASE (PPHA)



5-3. P BOARD ADJUSTMENTS (KV-27V15/32V15 only)

P IN P H. POSITION (PHPO)

1. Input a color-bar signal
2. Set to Service adjustment Mode.
3. Select PHPO with 1 and 4.
4. Adjust with 3 and 6 for the best balanced cent position at 4 corner P in P display position.
5. Write the memory by pressing MUTING then ENTER .

SECTION 6
DIAGRAMS

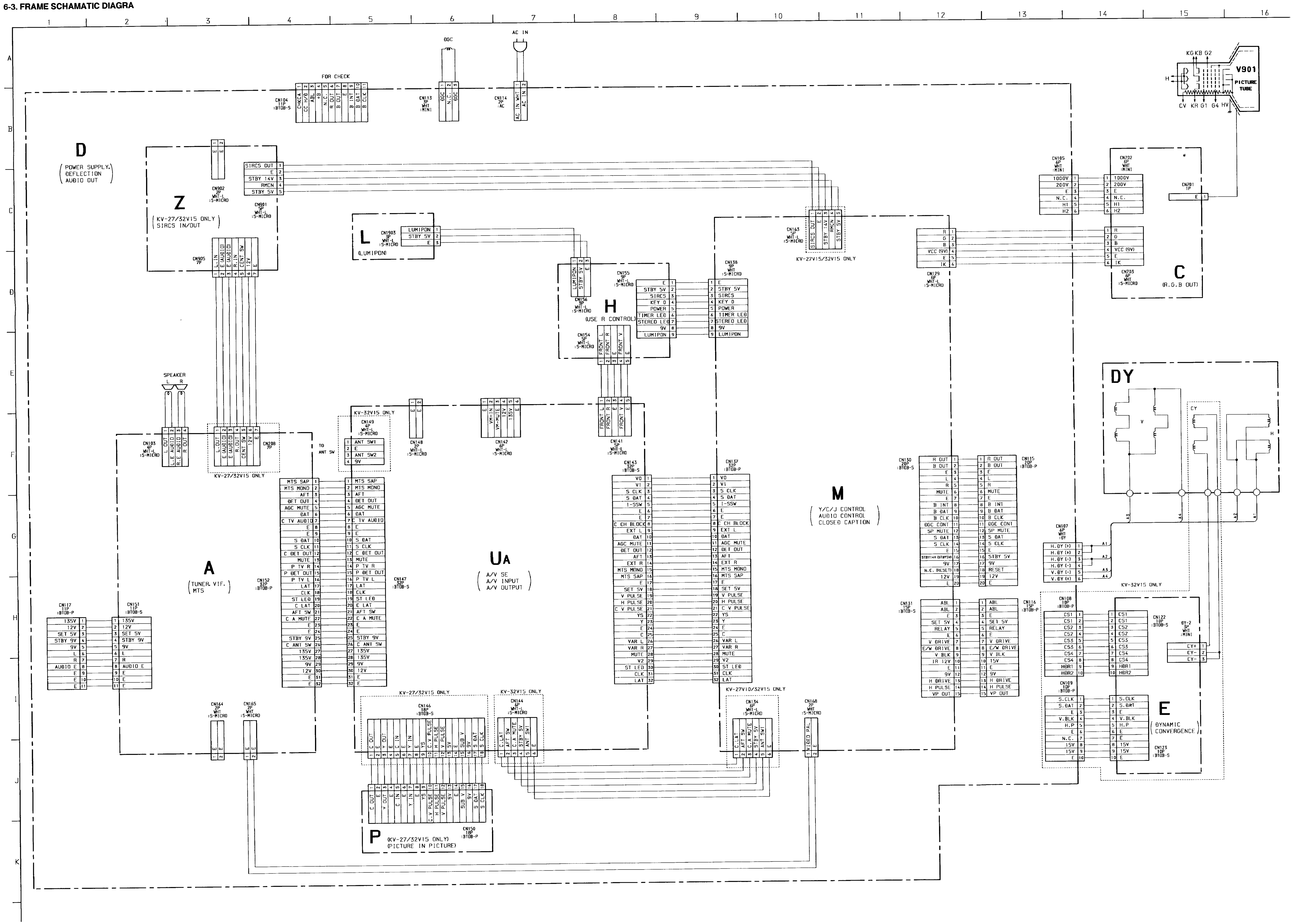
6-1. BLOCK DIAGRAMS (1)

TU102 SUB TUNER
TU101 MAIN TUNER
IC172 ANALOG SW
A (TUNER VIF MTS)
H (USER CONTROL) (2/2)
UA (A/V SW A/V INPUT/OUTPUT)
IC401 AV SW
IC402 AV SW
IC403 C-SW
IC404 Y-SW
S VIDEO
VIDEO 1
VIDEO 3
AUDIO OUT
KV-32V15 ONLY
M (Y/C JUNGLE CONTROL AUDIO CONTROL CLOSED CAPTION)
IC101 TUNING MICRO COMPUTER
IC150 CLOSED CAPTION
IC301 Y/C JUNGLE
IC102 MEMORY
IC103 5V REG/RESET
IC201 AUDIO PROCESSOR
IC202 VAR AMP
H (USER CONTROL) (1/2)
IC1001 SENSOR
L (LUMIPON)
IC1903 LUMIPON
C (R.G.B OUT)
V901 PICTURE TUBE
Z (SIRCS IN/OUT)
SIRCS OUT
SIRCS IN

6-2. BLOCK DIAGRAMS (2)

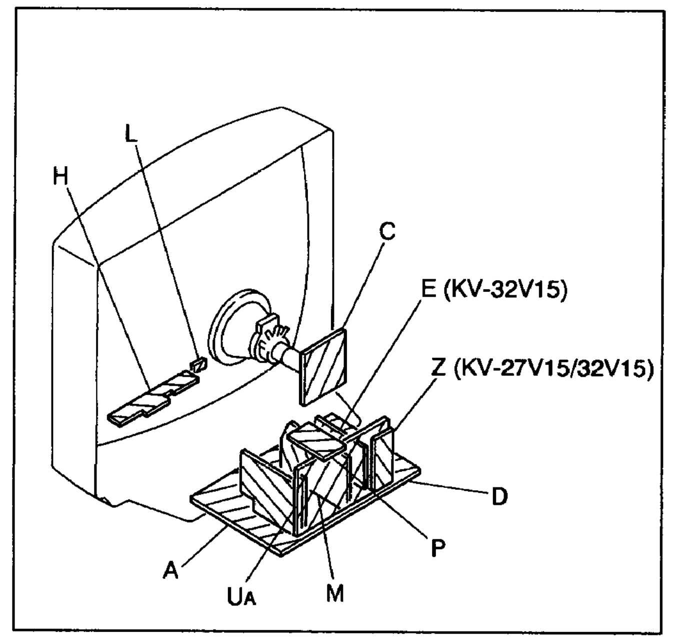
D (POWER SUPPLY DEFLECTION AUDIO OUT)
B
CN116
VBLK
ABL
RELAY
VP OUT
V DRIVE
E/W DRIVE
H PULSE
H DRIVE
CN117
E
L
R
CN104
CHKCA
CC H/D
ABL
B OUT
R OUT
B INT
B DAT
B CLK
FOR CHECK
CN115
D
SP MUTE
MUTE Q2202,2203
IC2200 AUDIO AMP
STBY 14V
DGC CONT
S DAT
S CLK
CN109
V BLK
HP
KV-32V15 ONLY
CN113
DGC
THP601
+15
RY601
DGC SW Q611
CN114
AC IN
F601
T601 LFT
T602 LFT
D602 AC REG
IC603 AUTO-VOLT
KV-29V10C ONLY
PM501 PROTECT MODULE
DET IN
ABL
CHECK
+B OUT
OCP
+B IN
LATCH
135V
T502 HDT
H DRIVE Q502
H OUT Q591
D515
D514
PIN DRIVE Q505
PIN OUT Q503,D509
IC501 V OUT
T503 PMT
HLC
S501
D511
S502
D510
CN108
HDR 2
HDR 1
CS1
CS2
CS3
CS4
+B
CN107
H.DY(+)
H.DY(-)
V.DY(-)
V.DY(+)
DY (1/2)
CN105
H2
H1
C
-15V RECT D504
PROT RECT D504
+15V RECT D502
+200V RECT D505
+1000V RECT D501
-15V
+15V
+200V
+1000V
T501 FBT
HV
FV
ABL
TO PICTURE TUBE
TO C BOARD
T603 CDT
CONVERTER Q602,605
CONVERTER Q601,D603
VDR602
VDR603
VDR601
T605 SBT
D619 STANBY-RECT
D626
D636
D637
IC610 SOFT START
RY602
POWER SW Q604
D628
D622
SOFT START Q614
SOFT START Q603,D607
T604 PIT
D615-618
15V RECT D612
8V RECT D613
D608-611
AUDIO +B
AUDIO E
+8V
D627
POWER CONTROL Q613
SOFT START Q605,D633-635
D614 VOLT SHIFT
D623 STOPPER
IC601 CONTROL
E (DYNAMIC CONVERGENCE)
KV-32V15 ONLY
CN122
HDR1
HDR2
CN123
S.DAT
S.CLK
H.P
V.BLK
D1509
D1508
BUFFER Q1501
VCC RECT D1516
LIMITER D1510
+9V
IC501 DYNAMIC CONV
SDA
SCL
H IN
V IN
VCC
REF
H.STAT
H.TILT
PARA2
PARA1
TEMP COMP D1515
H.STAT DRIV2,1 Q1506,1519
H.STAT OUT Q1508
CNT CLAMP D1504,1503
CONV.REG1,2 Q1507,1509
CONV DRIVE Q1503
CLIP D1501
CONV OUT D1502
CLAMP SW Q1511
LIMITER D505-507
IC506 F.B OP AMP
Y.BOW OUT Q1502
C BOW OUT Q1514
Y RESET Q1520
PEAK RECT D1513
D1517
L1502
L1504
IC502
+9V REG
CY+
CY-
DY (2/2)
CY
P (PICTURE IN PICTURE)
KV-27V15/32V15 ONLY
A
CN150
C IN
C OUT
Y OUT
Y IN
Y S
SUB V
H.PULSE
V.PULSE
CV PULSE
S DAT
S CLK
C BUFFER Q3207
C AMP2,1 Q3204,3206
Y BUFFER Q3209
Y AMP2,1 Q3203,3208
BUFFER Q3202
BUFFER Q3201
BUFFER Q3210
L.P.F
L3202
L3203
X3202
X3201
IC3204 PIP ANALOG PROCESS
C IN(P)
Y IN(P)
BGP(C)
FSC(C)
SYNC OUT
CLMP
BGP(P)
FSC(P)
HUE
4FSC(P)
M ON
V SW
4FSC(C)
L3207
L3206
B.P.F
L3208
IC3202 C A/D-D/A
IC3203 Y A/D-D/A
ADCK
DACK
CO6
CO1
CI1
CI6
YO6
YO1
YI1
YI6
IC3201 PIP CONTROL
CI16
DAC
SYNC
BGP
FSC
OP OUT
X BB
X AA
DZ1
H.P
V.P
V.PULSE(C)
D3208
D3209
P.SET
D3203
5V
A0
A6
RAS
CAS
MI0
MI3
MO0
MO3
OE
SAS
VCO IN
PHASE
IC3200 MEMORY
IC3205 INVERTER
IN
OUT
AFC D3202

6-3. FRAME SCHAMATIC DIAGRA



D
POWER SUPPLY, DEFLECTION AUDIO OUT
Z
KV-27/32V15 ONLY SIRCS IN/OUT
L
LUMIPON
H
USE R CONTROL
C
R.G.B OUT
V901
PICTURE TUBE
KG KB G2
CV KR G1 G4 HV
FOR CHECK
DGC
AC IN
SPEAKER
L R
DY
A
TUNER, VIF, MTS
UA
A/V SE
A/V INPUT
A/V OUTPUT
M
Y/C/J CONTROL
AUDIO CONTROL
CLOSED CAPTION
E
DYNAMIC CONVERGENCE
P
KV-27/32V15 ONLY
PICTURE IN PICTURE
KV-27/32V15 ONLY
KV-32V15 ONLY
KV-27V15/32V15 ONLY
KV-27V10/32V15 ONLY
CN104
CN113
CN114
CN902
CN901
CN905
CN1903
CN155
CN156
CN154
CN136
CN163
CN105
CN732
CN701
CN733
CN129
CN103
CN208
CN149
CN148
CN142
CN141
CN143
CN137
CN130
CN115
CN107
CN117
CN151
CN152
CN147
CN131
CN116
CN108
CN122
CN109
CN123
CN164
CN165
CN146
CN144
CN134
CN168
CN150

6-4. CIRCUIT BOARDS LOCATION


H
L
C
E (KV-32V15)
Z (KV-27V15/32V15)
D
P
A
UA
M

Part replaced (◪)	Adjustment (☒)
PM501, R511, R632, R645, R650 } D BOARD R338 M BOARD	HOLD-DOWN (R511)
IC601, PM501, D504, C598 R509, R524, R632, R635, R645, T501 } D BOARD R338 M BOARD	HOLD-DOWN (R524)

- All voltages are in V.
- Voltage are dc with respect to ground unless otherwise noted.
- Readings are taken with a 10 MΩ digital multimeter.
- Readings are taken with a color-bar signal input.
- Voltage variations may be noted due to normal production tolerance.
- Circled numbers are waveform references.
- ▭ : B+ line.
- ▭ : B– line.
- ➡ : signal path.

Reference Information

RESISTOR	: RN	METAL FILM
	: RC	SOLID
	: FPRD	NONFLAMMABLE CARBON
	: FUSE	NONFLAMMABLE FUSIBLE
	: RW	NONFLAMMABLE WIREWOUND
	: RS	NONFLAMMABLE METAL OXIDE
	: RB	NONFLAMMABLE CEMENT
	: ※	ADJUSTMENT RESISTOR
COIL	: LF-8L	MICRO INDUCTOR
CAPACITOR	: TA	TANTALUM
	: PS	STYROL
	: PP	POLYPROPYLENE
	: PT	MYLAR
	: MPS	METALIZED POLYESTER
	: MPP	METALIZED POLYPROPYLENE
	: ALB	BIPOLAR
	: ALT	HIGH TEMPERATURE
	: ALR	HIGH RIPPLE

Note: The symbol ⊟ display is on the component side.

The components identified by shading and mark △ are critical for safety. Replace only with part number specified.

The symbol ⊟ indicate fast operating fuse. Replace only with fuse of same rating as marked.

Note: Les composants identifiés par un tramé et une marque △ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

Le symbole ⊟ indique une fusible a action rapide. Doit etre remplacee par une fusible de meme yaleur, comme maque.

6-5. PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS

Note:

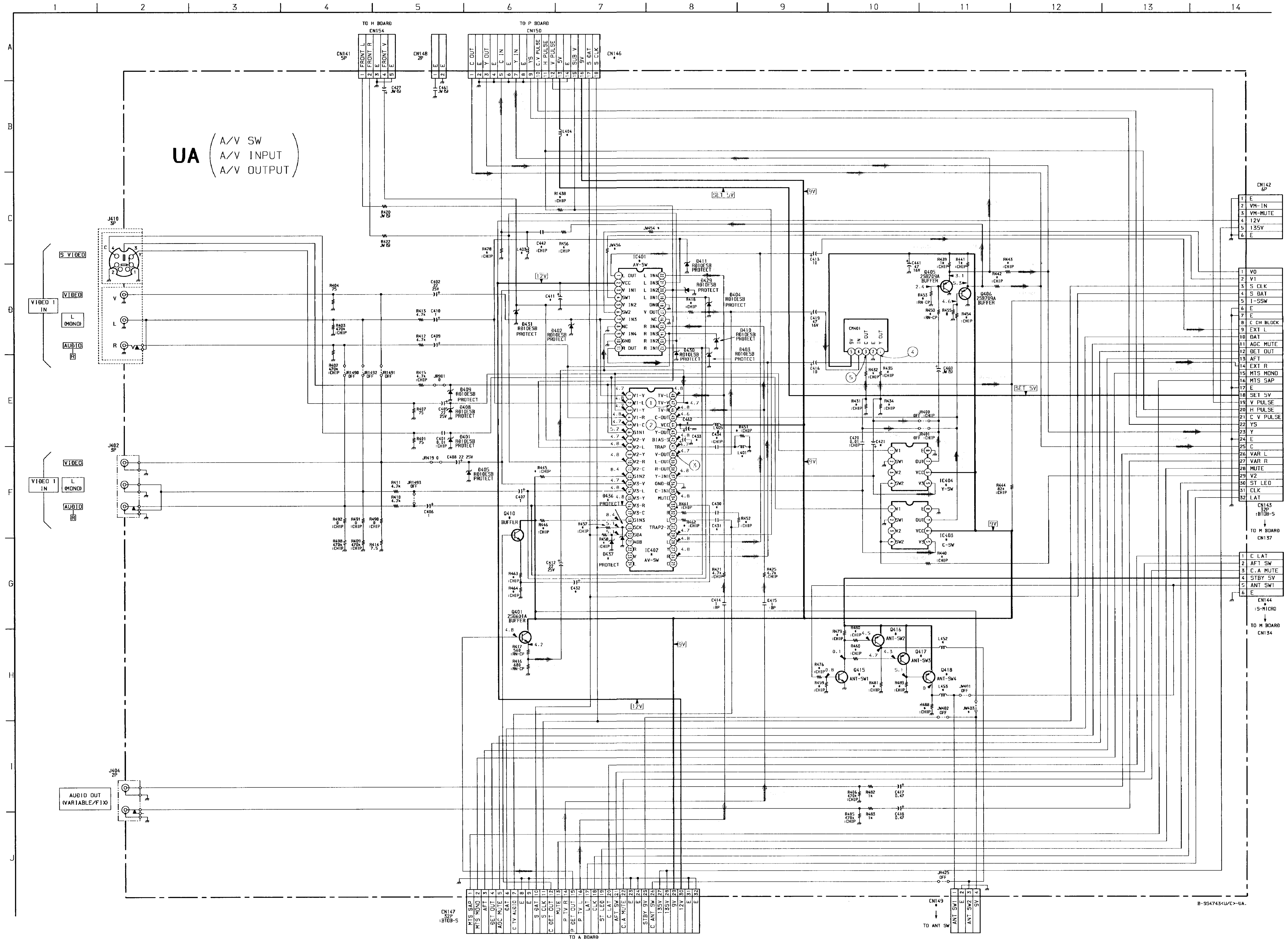
- All capacitors are in µF unless otherwise noted.
  pF: µµF 50WV or less are not indicated except for electrolytic and tantalums.
- All electrolytics are in 50V unless otherwise specified.
- Indication of resistance, which does not have one for rating electrical power, is as follows.

Pitch: 5 mm
Rating electrical power 1/4W

- Chips resistors are 1/10W.
- All resistors are in ohms.
  kΩ=1000Ω, MΩ=1000KΩ
- ▭ : nonflammable resistor.
- ▭ : fusible resistor.
- △: internal component.
- ☐: panel designation, and adjustment for repair.
- All variable and adjustable resistors have characteristic curve B, unless otherwise noted.
- ⊥ : earth-ground. (cool)
- ⏚ : earth-chassis. (hot)
- The components identified by ◪ in this manual have been carefully factory-selected for each set in order to satisfy regulations regarding X-ray radiation.
  Should replacement be required, replace only with the value originally used.
- When replacing components identified by ◪ , make the necessary adjustments indicated. If results do not meet the specified value, change the component identified by ☒ and repeat the adjustment until the specified value is achieved. (Refer to R511 and R524 on page 34, 35)
- When replacing the part in below table be sure to parform the related adjustment.

Schematic diagrams

UA board ➡


UA
A/V SW
A/V INPUT
A/V OUTPUT
TO H BOARD CN154
TO P BOARD CN150
CN141 5P
CN148 2P
CN146
J410 5P
S VIDEO
VIDEO 1 IN
VIDEO
L (MONO)
AUDIO
R
J402 3P
J404 2P
AUDIO OUT (VARIABLE/FIX)
IC401 AV-SW
IC402 AV-SW
IC403 C-SW
IC404 Y-SW
Q410 BUFFER
Q401 2SA1091A BUFFER
Q405 2SC2785A BUFFER
Q404 2SC2785A BUFFER
Q415 ANT-SW1
Q416 ANT-SW2
Q417 ANT-SW3
Q418 ANT-SW4
CN142 6P
CN143 32P
TO M BOARD CN137
CN144
TO M BOARD CN134
CN147 32P
TO A BOARD CN152
CN149
TO ANT SW
B-554743<U/C>-UA.
1
2
3
4
5
6
7
8
9
10
11
12
13
14
A
B
C
D
E
F
G
H
I
J

– UA BOARD –

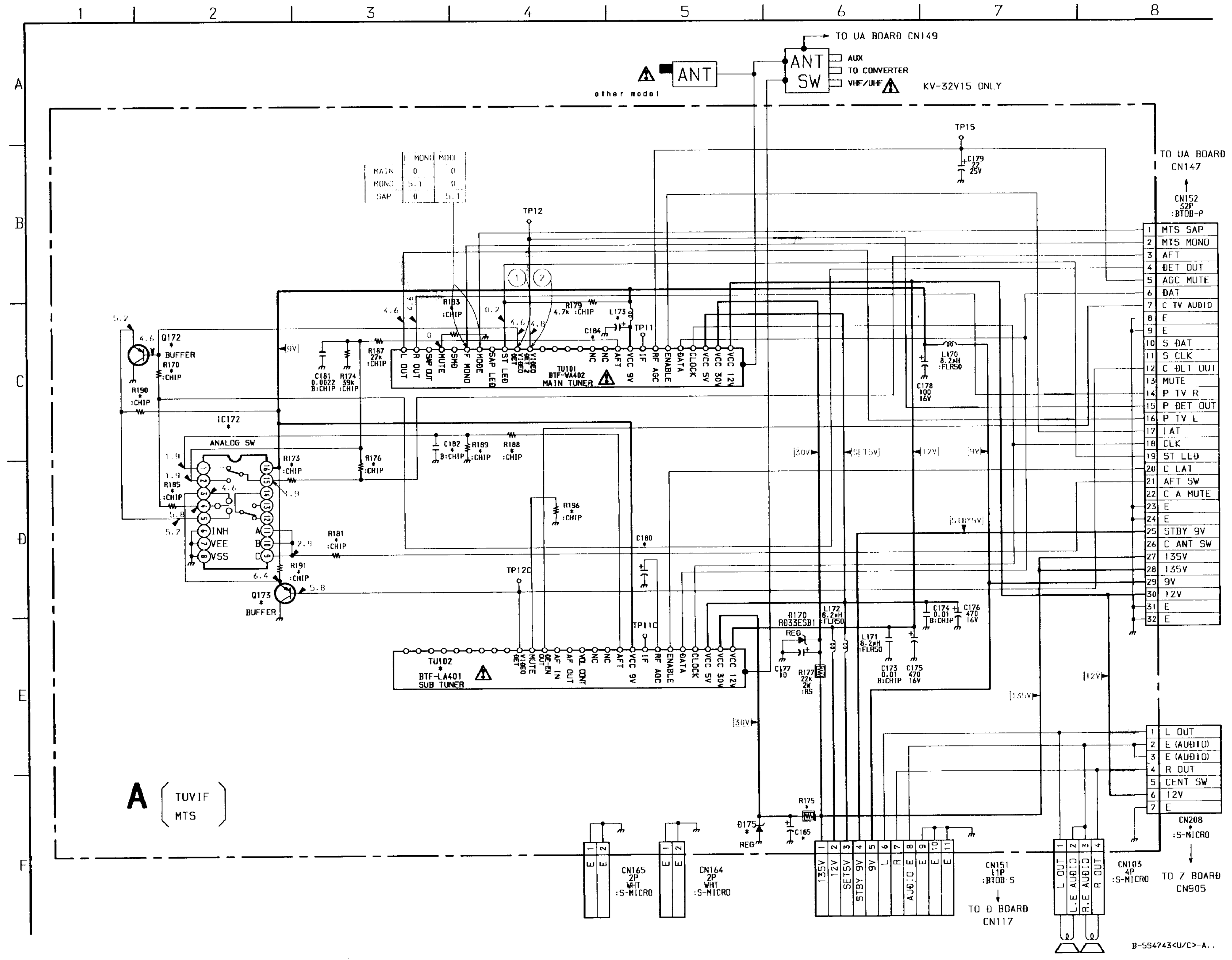
Ref	LOCATION	KV-27V10/27V15 /29V10C/29V10M	KV-32V15
C411	C – 6	100 25V	–
C421	E – 10	0.47	22 25V
C430	F – 8	–	1
C431	F – 8	–	1
C432	F – 7	–	22 25V
C433	E – 8	–	33 25V
C434	E – 8	–	100P
C442	C – 6	–	100P
C462	E – 8	–	100 16V
CN142	C – 14	–	2P
CN144	F – 14	–	6P
CN146	A – 7	–	18P
CN149	K – 11	–	4P
D436	F – 7	–	RD10ESB
D437	F – 7	–	RD10ESB
IC401	C – 7	M52470AP	–
IC402	E – 7	–	CXA1545AS
IC403	F – 10	MM1114XFF	–
IC404	E – 10	MM1118XFF	–
JW403	J – 11	–	10MM
JW454	C – 8	10K	–
JW456	C – 7	10K	–
L401	E – 9	–	18 μH
L403	C – 6	–	33 μH
L404	B – 6	–	33 μH
L405	E – 8	–	JW (5)
L452	I – 10	–	JW (5)
L453	J – 10	–	JW (5)
Q410	F – 6	–	2SD601A
Q415	I – 9	–	2SD601A
Q416	I – 9	–	2SB709A
Q417	I – 10	–	2SB709A
Q418	I – 10	–	2SB709A
R418	D – 8	100	–
R413	D – 10	680	1K
R432	D – 10	680	0
R434	D – 10	680	1K
R435	D – 10	680	0
R440	F – 10	100	–
R442	C – 11	100	–
R443	C – 11	100	–
R445	E – 6	–	10K
R446	F – 6	–	10K
R450	C – 11	100	470
R451	E – 9	–	4.7K
R452	F – 9	–	100
R453	C – 11	1.2K	560
R454	D – 11	100	0
R456	C – 6	–	470
R457	F – 7	–	220
R458	F – 7	–	220
R459	I – 9	–	22K
R460	I – 9	–	330
R461	F – 8	–	4.7K
R462	F – 8	–	4.7K
R463	F – 6	–	680
R464	G – 6	–	680
R476	I – 9	–	22K
R478	C – 6	–	470
R479	I – 9	–	22K
R480	I – 9	–	22K
R481	I – 10	–	22K
R488	I – 10	–	22K
R489	I – 10	–	22K
R1438	C – 6	–	22K

– : NOT MOUNT

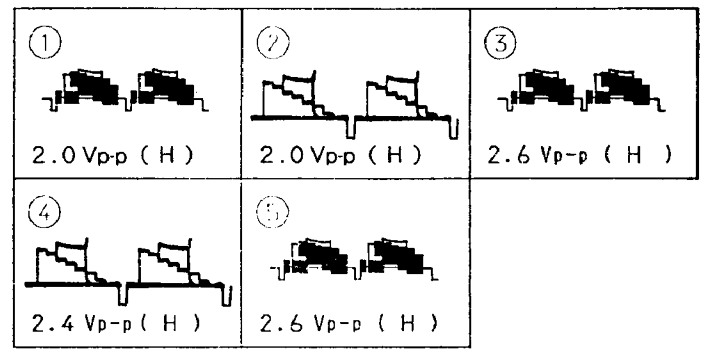
– A BOARD –

Ref	LOCATION	KV-27V10/27V15 /29V10C/29V10M	KV-32V15
C180	D – 5	–	22MF / 25V
C182	D – 3	–	0.0022MF
C184	D – 5	–	10MF / 50V
C185	F – 6	–	10MF / 50V
CN208	F – 8	7P	–
D175	F – 5	–	RD33ESB1
IC172	D – 2	–	BU4053BF
L173	C – 5	–	8.2 μH
Q172	C – 2	–	2SA1162-G
Q173	D – 2	–	2SA1162-G
R170	C – 2	100 1/10W	–
R173	D – 3	–	0 1/10W
R175	F – 6	–	22K 2W
R176	D – 3	0 1/10W	–
R181	D – 3	–	100 1/10W
R185	D – 2	–	100 1/10W
R188	D – 4	–	39K 1/10W
R189	D – 4	–	27K 1/10W
R190	C – 2	–	4.7K 1/10W
R191	D – 3	–	4.7K 1/10W
R193	C – 3	–	330 1/10W
R196	D – 4	–	330 1/10W
TU102	E – 4	–	BTF-LA401

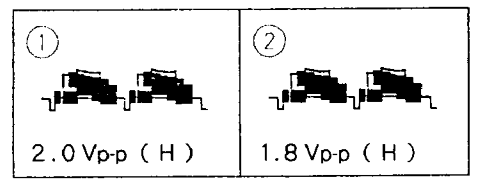
– : NOT MOUNT


1
2
3
4
5
6
7
8
A
B
C
D
E
F
ANT
other model
ANT
SW
TO UA BOARD CN149
AUX
TO CONVERTER
VHF/UHF
KV-32V15 ONLY
TP15
TP12
TU101
BTF-NA402
MAIN TUNER
TU102
BTF-LA401
SUB TUNER
IC172
ANALOG SW
Q172
BUFFER
Q173
BUFFER
TO UA BOARD
CN147
CN152
32P
:BTOB-P
1 MTS SAP
2 MTS MONO
3 AFT
4 DET OUT
5 AGC MUTE
6 DAT
7 C TV AUDIO
8 E
9 E
10 S DAT
11 S CLK
12 C DET OUT
13 MUTE
14 P TV R
15 P DET OUT
16 P TV L
17 LAT
18 CLK
19 ST LED
20 C LAT
21 AFT SW
22 C A MUTE
23 E
24 E
25 STBY 9V
26 C ANT SW
27 135V
28 135V
29 9V
30 12V
31 E
32 E
1 L OUT
2 E (AUDIO)
3 E (AUDIO)
4 R OUT
5 CENT SW
6 12V
7 E
CN208
:S-MICRO
TO Z BOARD
CN905
CN103
4P
:S-MICRO
L OUT
L.E AUDIO
R.E AUDIO
R OUT
R
L
CN151
11P
:BTOB-S
TO D BOARD
CN117
CN145
CN164
:S-MICRO
B-554743<U/C>-A..
A
TU/VIF
MTS

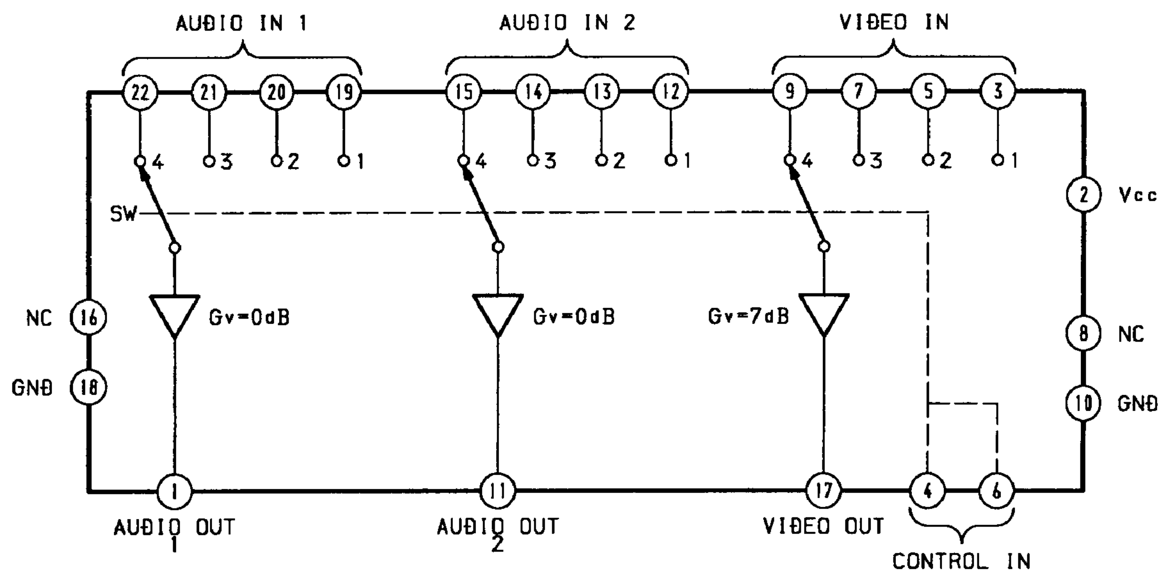
• **UA BOARD WAVEFORMS**



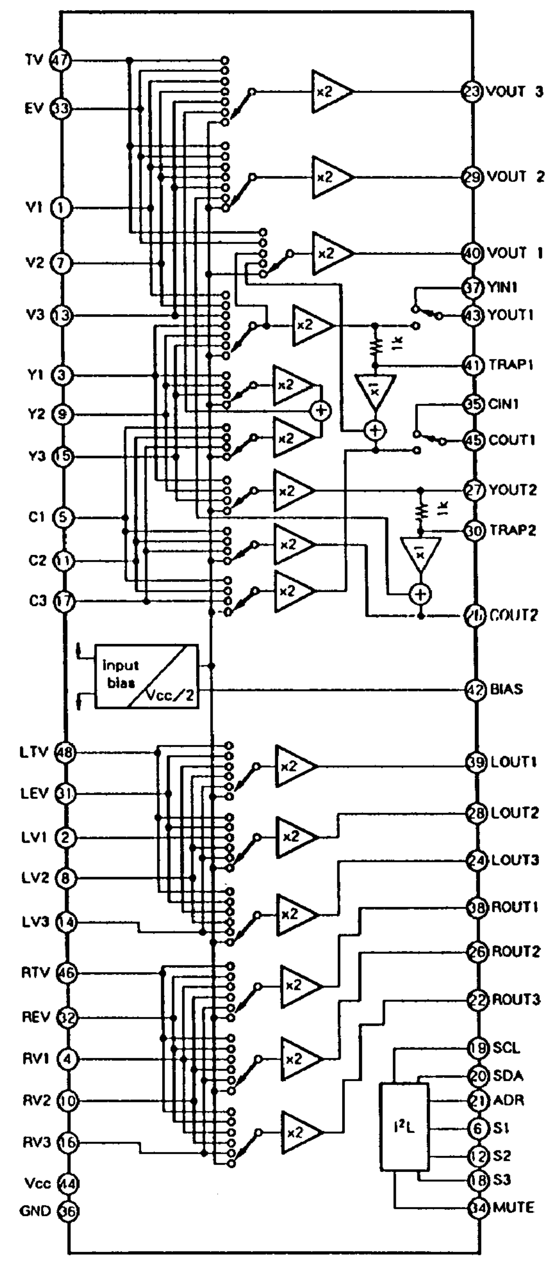
• **A BOARD WAVEFORMS**



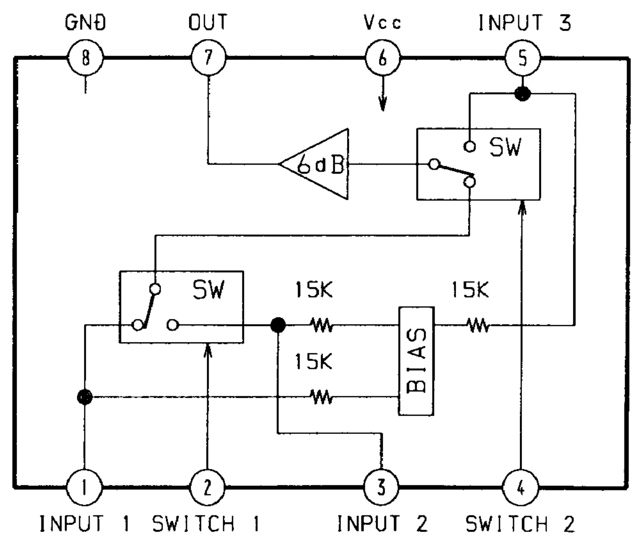
● **UA Board IC401 M52470AP**


AUDIO IN 1
AUDIO IN 2
VIDEO IN
22
21
20
19
15
14
13
12
9
7
5
3
4
3
2
1
SW
Vcc
2
NC
16
GND
18
NC
8
GND
10
Gv=0dB
Gv=0dB
Gv=7dB
1
AUDIO OUT
11
AUDIO OUT 2
17
VIDEO OUT
4
6
CONTROL IN

● **UA Board IC402 CXA1545AS**

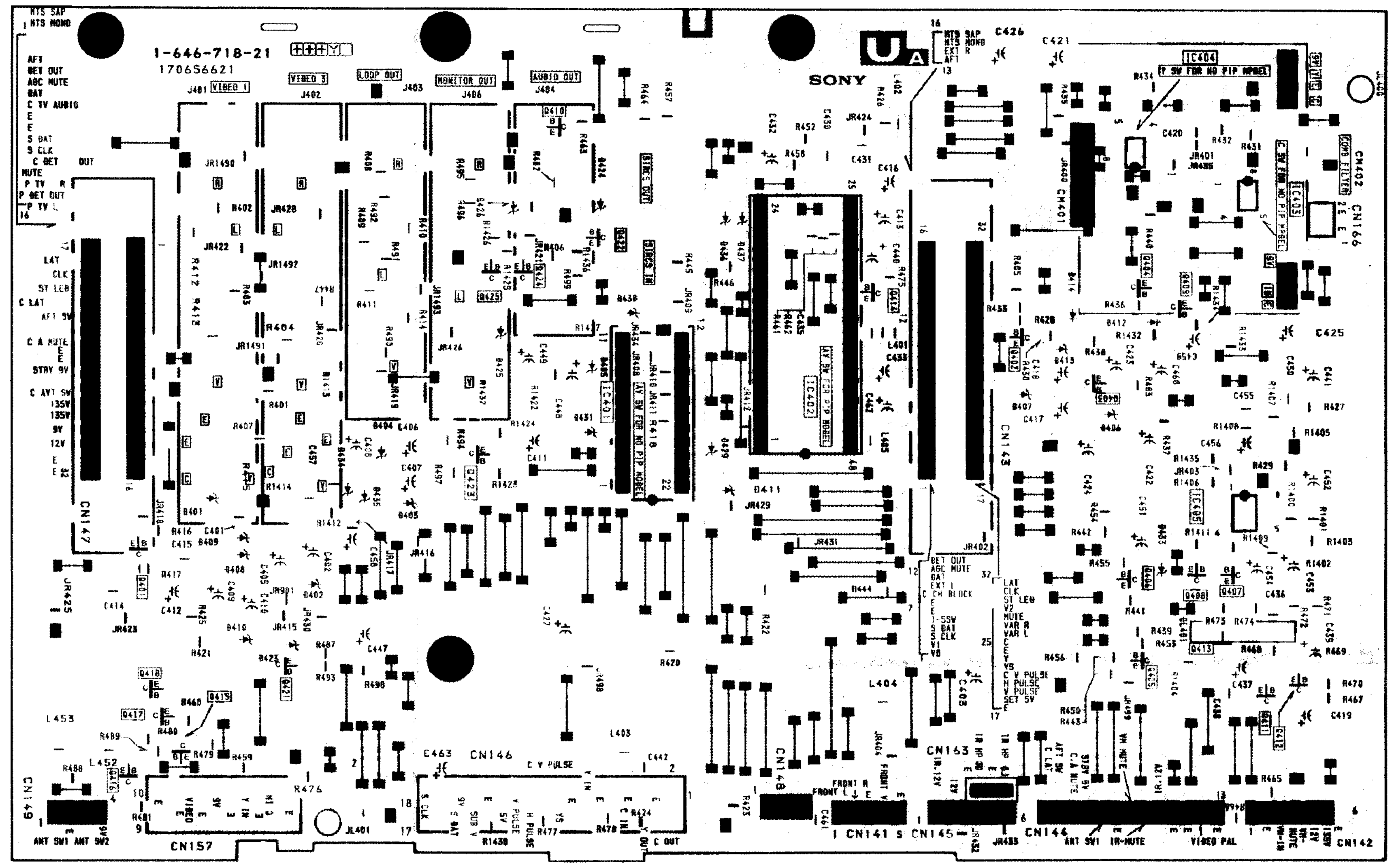

TV
EV
V1
V2
V3
Y1
Y2
Y3
C1
C2
C3
LTV
LEV
LV1
LV2
LV3
RTV
REV
RV1
RV2
RV3
Vcc
GND
VOUT 3
VOUT 2
VOUT 1
YIN1
YOUT1
TRAP1
CIN1
COUT1
YOUT2
TRAP2
COUT2
BIAS
LOUT1
LOUT2
LOUT3
ROUT1
ROUT2
ROUT3
SCL
SDA
ADR
S1
S2
S3
MUTE
x2
Input bias
Vcc/2
I²L

● **UA Board IC403 MM1114XFF**

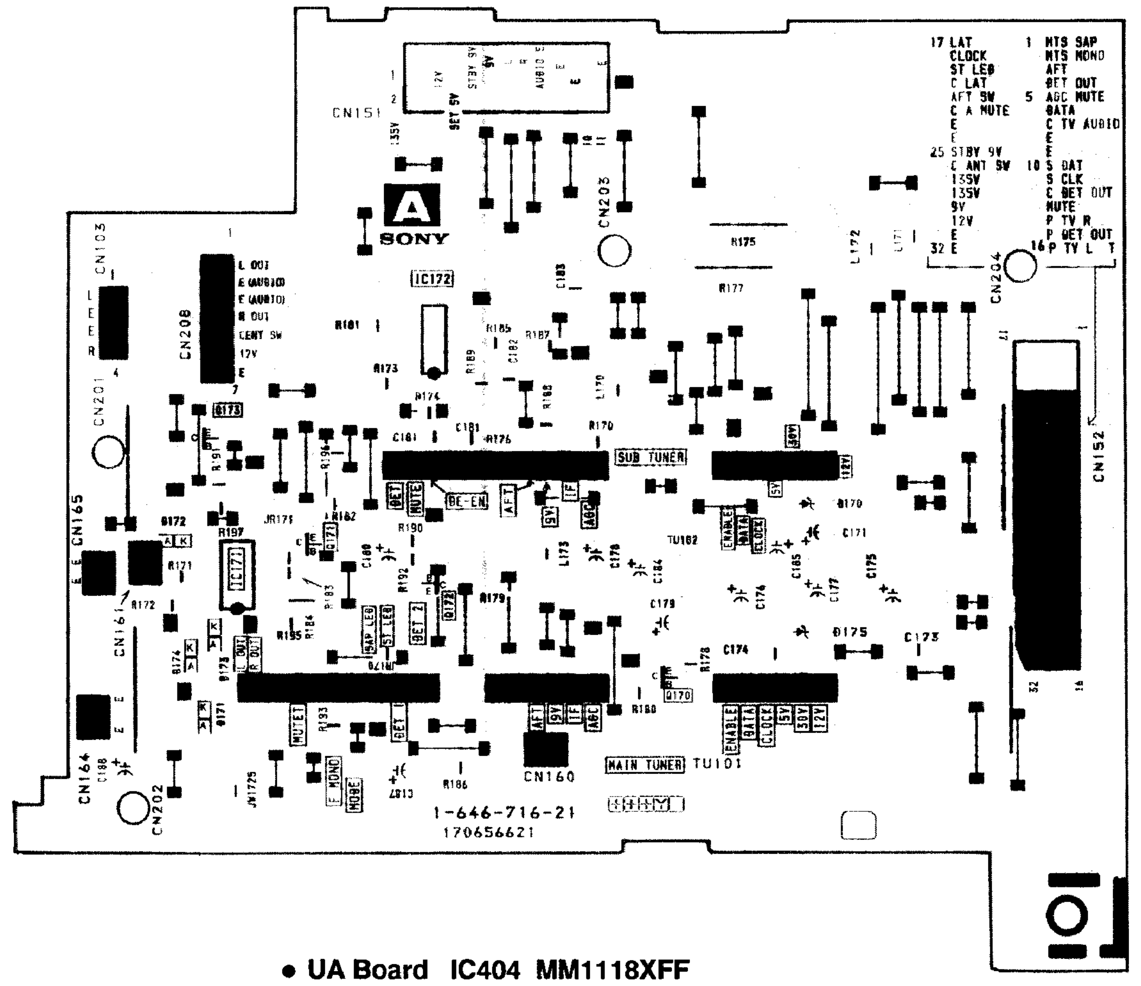

GND
8
OUT
7
Vcc
6
INPUT 3
5
6dB
SW
SW
15K
15K
15K
BIAS
1
INPUT 1
2
SWITCH 1
3
INPUT 2
4
SWITCH 2

UA [A/V SW, A/V INPUT, A/V OUTPUT] **A** [TUNER, VIF, MTS]

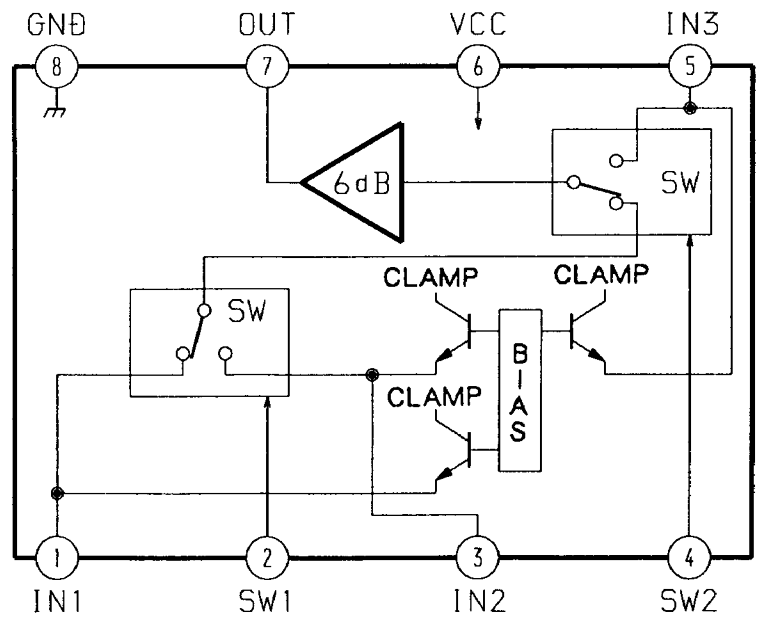
– UA BOARD – (Conductor Side)


1-646-718-21
170656621
SONY
U A
CN157
CN146
CN141
CN145
CN142
IC402

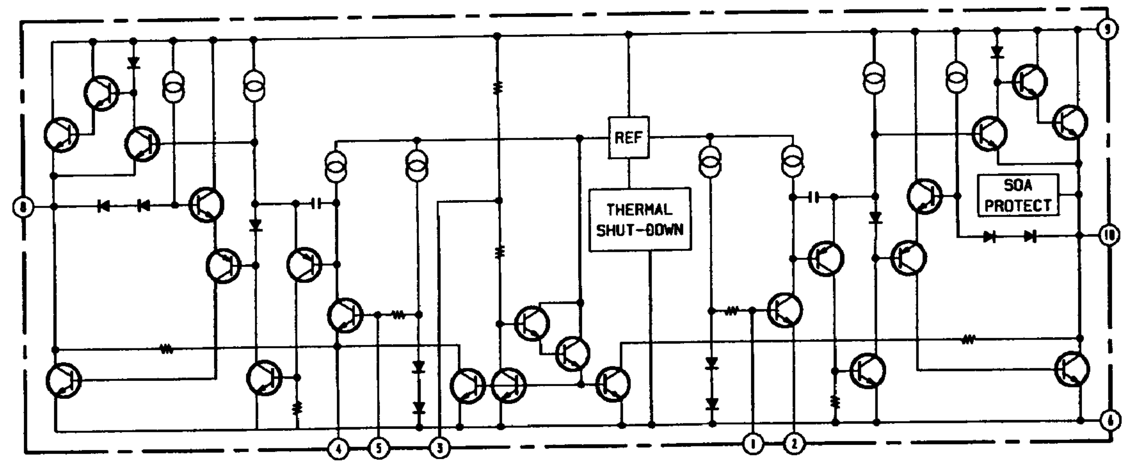
– A BOARD – (Conductor Side)


A
SONY
CN151
CN152
CN160
IC172
MAIN TUNER
TU101
SUB TUNER
1-646-716-21
170656621

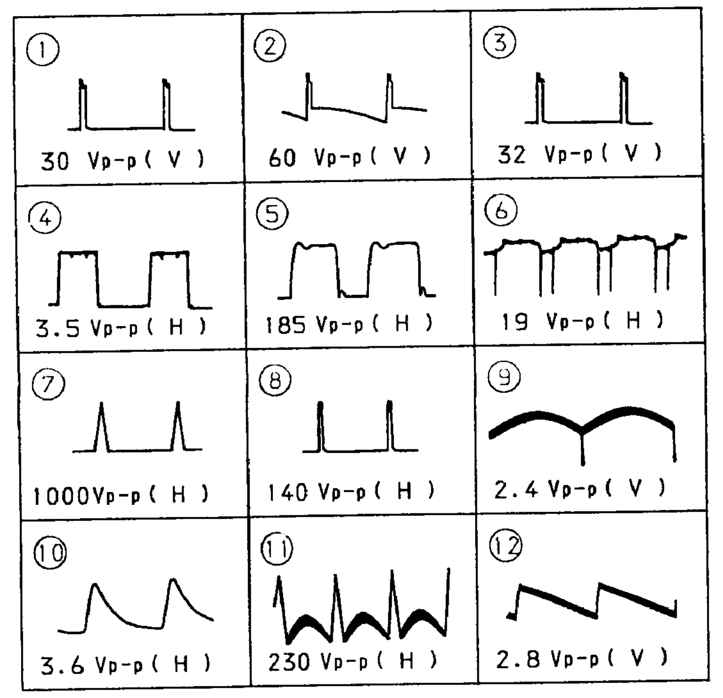
● **UA Board IC404 MM1118XFF**


GND
8
OUT
7
VCC
6
IN3
5
6dB
SW
SW
CLAMP
CLAMP
CLAMP
BIAS
1
IN1
2
SW1
3
IN2
4
SW2

• D Board IC2200 TDA2009A


REF
THERMAL SHUT-DOWN
SOA PROTECT

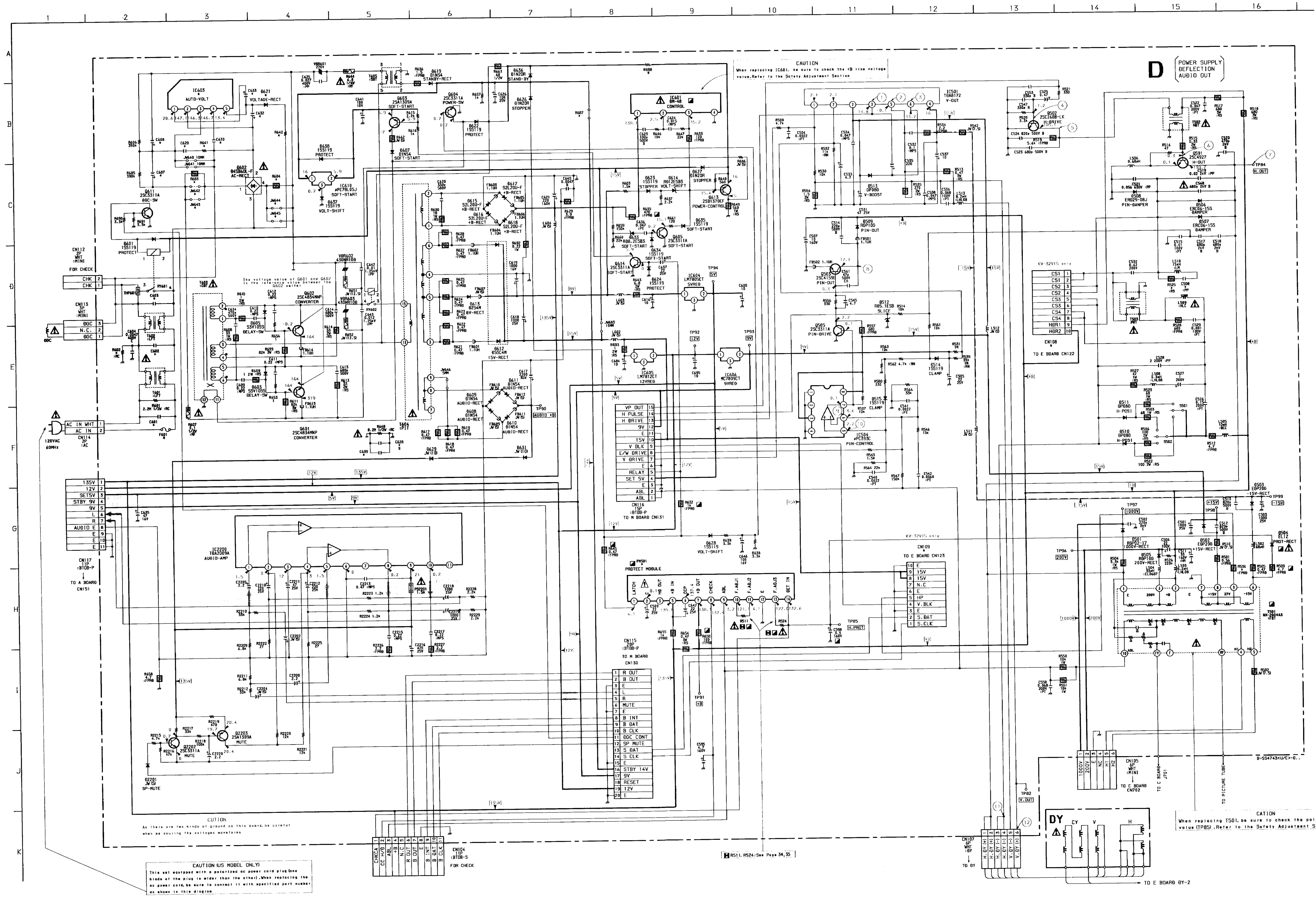
• D BOARD WAVEFORMS



– D BOARD –

Ref	LOCATION	KV-27V10 / 29V10M	KV-27V15	KV-29V10C	KV-32V15
C508	D – 15	0.0022 / 630V	0.0022 / 630V	0.0022 / 630V	–
C601	E – 2	0.47 / 125V	0.47 / 125V	0.47 / 300V	0.47 / 125V
C602	E – 2	0.47 / 125V	0.47 / 125V	–	0.47 / 125V
C603	D – 2	0.47 / 125V	0.47 / 125V	–	0.47 / 125V
C607	C – 2	470 / 200V	470 / 200V	560 / 250V	470 / 200V
C608	B – 2	470 / 200V	470 / 200V	560 / 250V	470 / 200V
C628	F – 5	–	–	470P / 400V	–
C629	B – 2	–	–	0.047 / 200V	–
C630	B – 3	–	–	0.1	–
C632	B – 3	–	–	2.2	–
C633	B – 3	–	–	100	–
C639	F – 5	470P / 400V	470P / 400V	–	470P / 400V
CN108	D – 13	–	–	–	10P
CN109	H – 12	–	–	–	10P
D621	B – 4	–	–	RGP02-17	–
F601	F – 2	6.3A/125V	6.3A/125V	6.3A/250V	6.3A/125V
IC603	B – 3	–	–	STR81159A	–
JW640	B – 3	10MM	10MM	–	10MM
JW641	B – 3	10MM	10MM	–	10MM
JW642	C – 3	10MM	10MM	–	10MM
JW643	C – 3	10MM	10MM	–	10MM
JW644	C – 4	10MM	10MM	–	10MM
JW645	C – 4	10MM	10MM	–	10MM
JW681		–	–	10MM	–
JW682		–	–	10MM	–
PM501	H – 9	PM-38	PM-38	PM-38	PM-39
R525	D – 15	47 / 2W	47 / 2W	47 / 2W	–
R536	H – 15	–	–	–	4.7
R602	E – 2	2.2M 1/2W	2.2M 1/2W	8.2M / 1W	22M 1/2W
R641	B – 3	–	–	4.7 1/4W	–
R642	B – 4	–	–	2.2 1/4W	–
R683	C – 3	–	–	1 10W	–
R684	C – 4	–	–	1 10W	–
R687	B – 7	6.8 / 1W	6.8 / 1W	JW(12.5)	6.8 / 1W

– : NOT MOUNT


D
POWER SUPPLY
DEFLECTION
AUDIO OUT
IC603 AUTO-VOLT
IC601 BM-48 CONTROL
IC501 TDA8172 V-OUT
IC2200 TDA2009A AUDIO-AMP
IC604 LM7805CT 5VREG
IC605 LM7812CT 12VREG
IC606 MC7809CT 9VREG
IC504 µPC393C PIN-CONTROL
IC610 µPC78L05J
Q601 2SC4834NNP CONVERTER
Q602 2SC4834NNP CONVERTER
Q605 2SC5311A DELAY-SW
Q606 2SC5311A DELAY-SW
Q613 2SB1370EF POWER-CONTROL
Q591 2SC4927 H-OUT
Q502 2SC2688-LK H-DRIVE
CN112 FOR CHECK
CN113 DGC
CN114 AC IN
CN116 TO N BOARD CN131
CN117 TO A BOARD CN151
CN115 TO M BOARD CN150
CN104 FOR CHECK
CN108 TO E BOARD CN122
CN109 TO E BOARD CN123
CN105 TO C BOARD CN702
CN107 TO DY
TO C BOARD J701
TO PICTURE TUBE
TO E BOARD DY-2
PM501 PROTECT MODULE
DY
120VAC 60MHz

CAUTION
When replacing IC601, be sure to check the +B line voltage value.Refer to the Safety Adjustment Section

CUTION
As there are two kinds of ground on this board, be careful when measuring the voltages waveforms

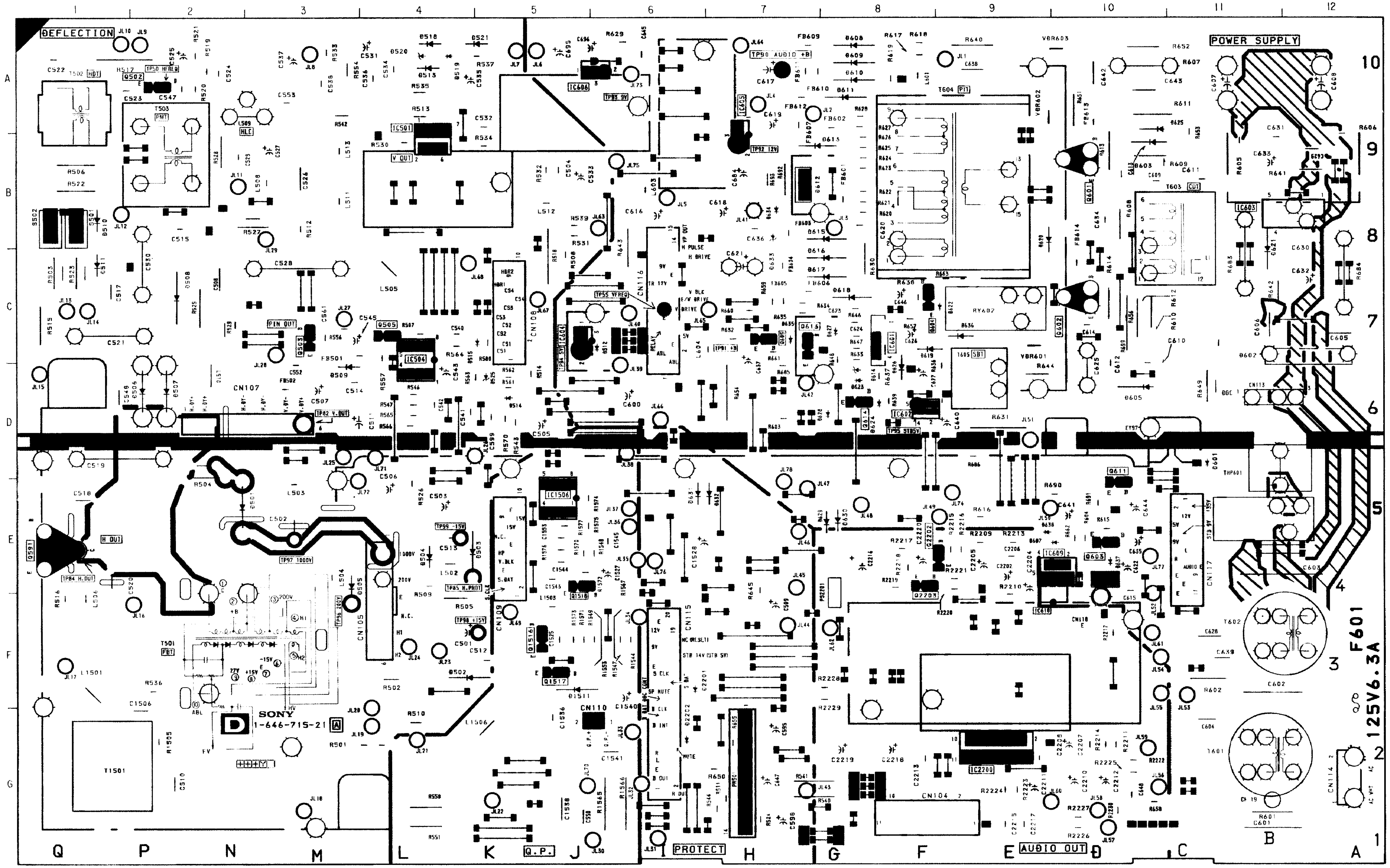
CAUTION (US MODEL ONLY)
This set equipped with a polarized ac power cord plug (one blade of the plug is wider than the other).When replacing the ac power cord, be sure to connect it with specified part number ac shown in this diagram

CATION
When replacing T501, be sure to check the point voltage value (TP85).Refer to the Safety Adjustment Section.

R511, R524 : See Page 34, 35

D [POWER SUPPLY, DEFLECTION, AUDIO OUT]

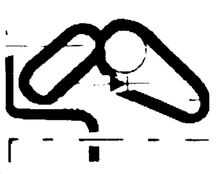
- D BOARD - 〈Conductor Side〉


1
2
3
4
5
6
7
8
9
10
11
12
A
B
C
D
E
F
G
DEFLECTION
POWER SUPPLY
PROTECT
AUDIO OUT
Q.P.
Q
P
N
M
L
K
J
H
G
F
E
D
C
B
A
10
9
8
7
6
5
4
3
2
1
F601
125V6.3A
SONY
D 1-646-715-21 A
T501
T503
T1501
T601
T602
T603
T604
RY602
CN104
CN107
CN110
CN115
IC501
IC504
IC601
IC602
IC603
IC604
IC605
IC606
IC609
IC610
IC1506
IC2200
TP90 AUDIO +B
TP91 12V
TP93 5V
TP95 VFB
TP97 1000V
TP98 +15V
TP99 -15V
TP84 H.OUT
H OUT
V OUT
H DRIVE
H PULSE
V BLK
ABL
RELAY
STB 14V
AC WHT
AC

IC	
IC501	A – 4
IC504	C – 4
IC601	C – 8
IC603	B – 11
IC604	C – 5
IC605	A – 7
IC606	A – 5
IC610	F – 10
IC2200	G – 9

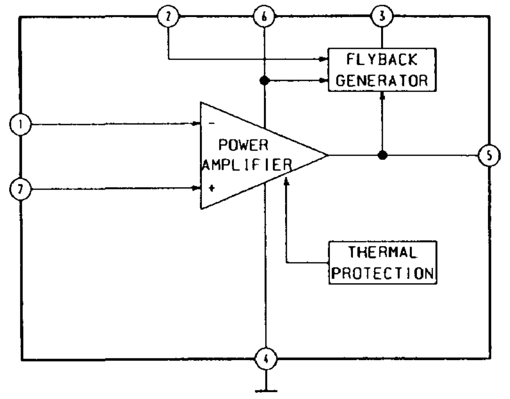
TRANSISTOR	
Q502	A – 2
Q503	C – 3
Q505	C – 4
Q591	E – 1
Q601	B – 10
Q602	C – 10
Q603	E – 10
Q604	C – 8
Q605	C – 7
Q611	E – 10
Q613	C – 7
Q614	D – 8
Q2202	E – 8
Q2203	E – 8

DIODE	
D501	E – 3
D502	F – 4
D503	E – 4
D504	E – 4
D505	E – 3
D506	D – 2
D507	D – 2
D508	C – 2
D509	D – 3
D510	B – 1
D511	C – 1
D512	C – 6
D513	A – 4
D514	D – 5
D515	C – 4
D601	D – 11
D602	C – 11
D603	B – 10
D605	D – 10
D607	E – 10
D608	A – 8
D609	A – 8
D610	A – 8
D611	A – 8
D612	B – 7
D613	B – 8
D614	D – 8
D615	B – 8
D616	C – 8
D617	C – 8
D618	C – 8
D619	C – 8
D622	C – 9
D623	D – 8
D624	D – 8
D626	D – 8
D627	C – 8
D628	D – 8
D633	B – 7
D634	B – 7
D635	C – 8
D636	C – 9
D637	E – 10
D638	E – 10

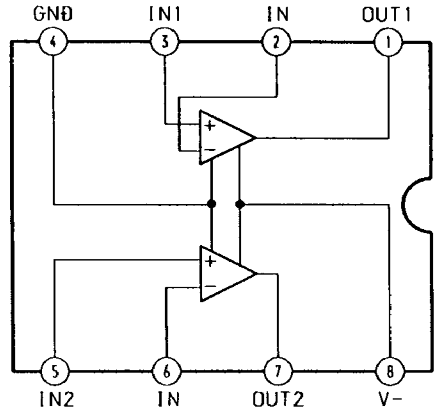


NOTE:
The circuit indicated as left contains high voltage of over 600 Vp-p. Care must be paid to prevent an electric shock in inspection or repairing.

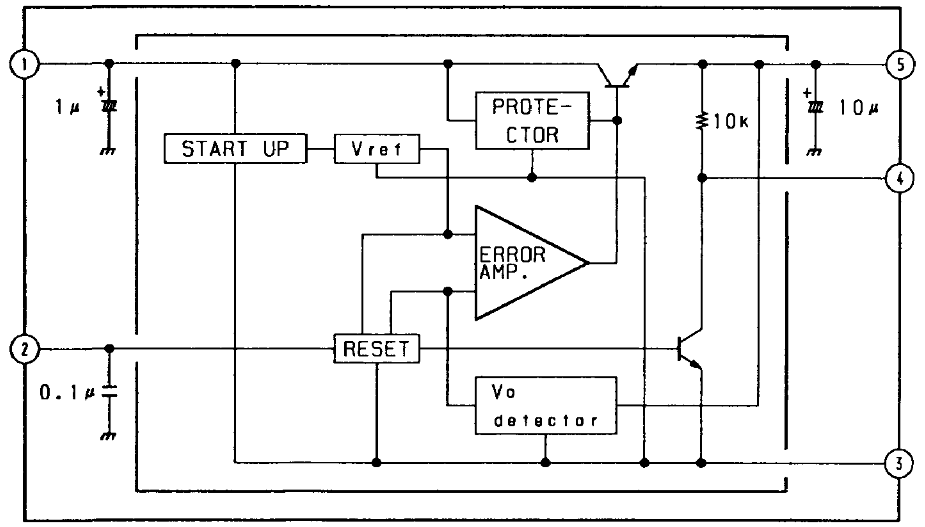
• D Board IC501 TDA8172


①
②
③
④
⑤
⑥
⑦
FLYBACK GENERATOR
POWER AMPLIFIER
THERMAL PROTECTION
-
+

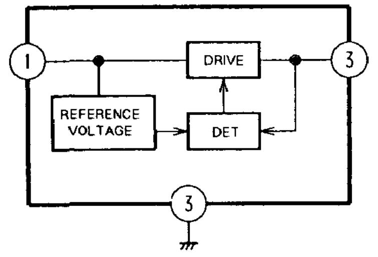
• D Board IC504 μ PC393C


GND
IN1
IN
OUT1
④
③
②
①
⑤
⑥
⑦
⑧
IN2
IN
OUT2
V-
+
-

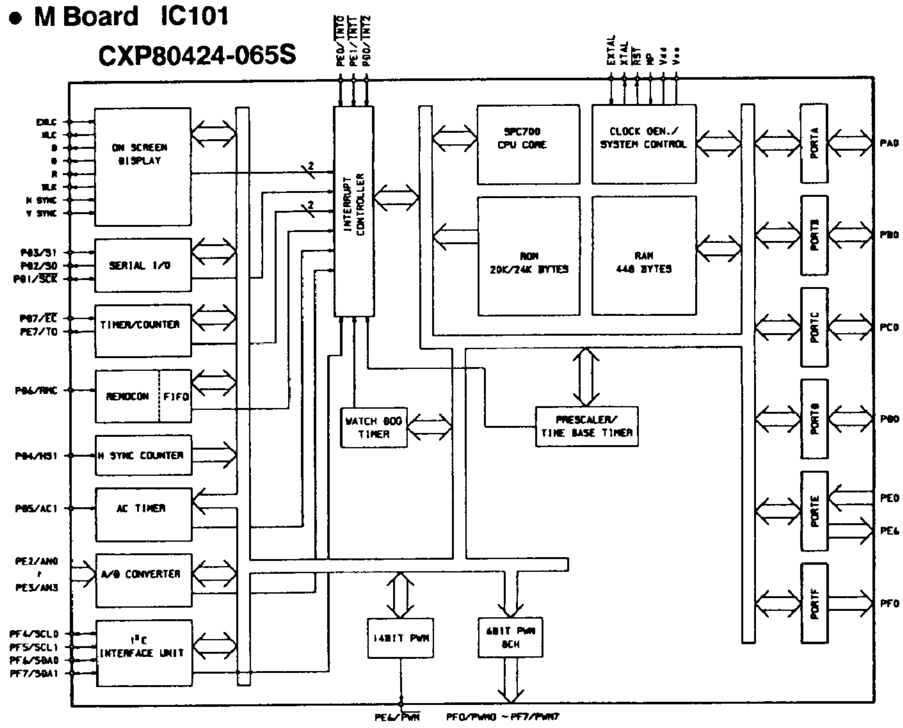
• D Board IC602 L78LR05D


①
②
③
④
⑤
1μ
10μ
0.1μ
10k
START UP
Vref
PROTE-CTOR
ERROR AMP.
RESET
Vo detector

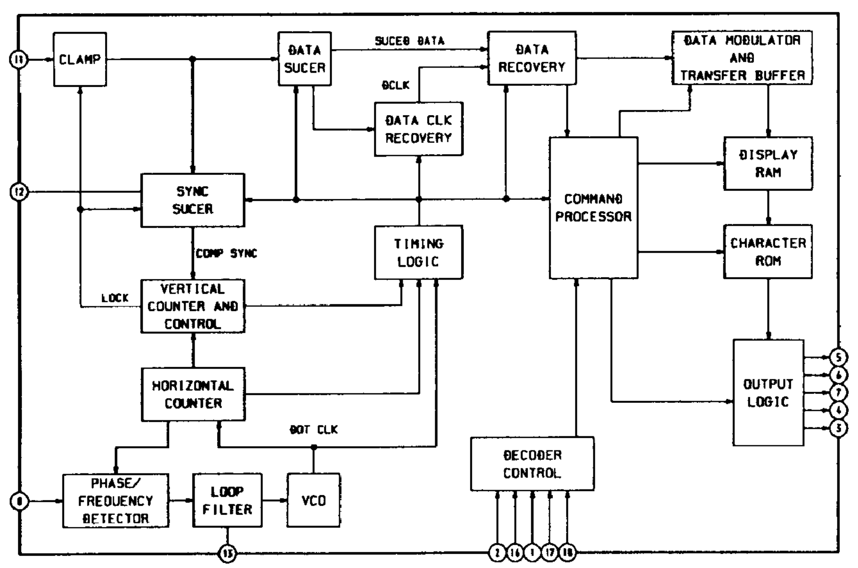
• D Board IC610 μ PC78L05J


①
③
③
DRIVE
REFERENCE VOLTAGE
DET

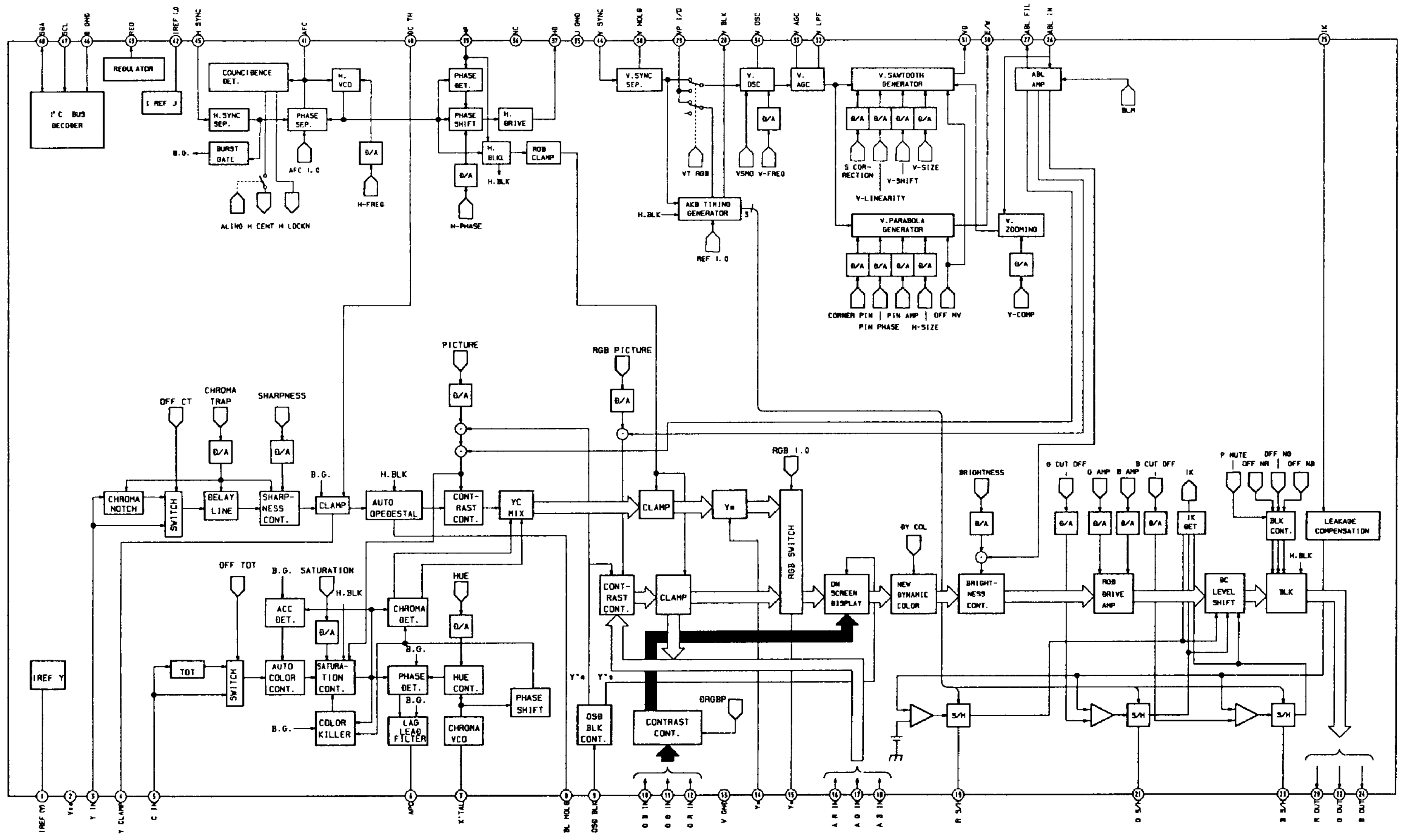
• M Board IC101
CXP80424-065S


PE0/INT0
PE1/INT1
PD0/INT2
EXTAL
XTAL
RST
NP
Vdd
Vss
EXLC
XLC
B
G
R
BLK
H SYNC
V SYNC
ON SCREEN DISPLAY
PD3/SI
PD2/SO
PD1/SCK
SERIAL I/O
PD7/EC
PE7/TO
TIMER/COUNTER
PD6/RMC
REMOCON
FIFO
PD4/HSI
H SYNC COUNTER
PD5/ACI
AC TIMER
PE2/AN0
PE3/AN3
A/D CONVERTER
PF4/SCL0
PF5/SCL1
PF6/SDA0
PF7/SDA1
I²C INTERFACE UNIT
INTERRUPT CONTROLLER
2
2
WATCH DOG TIMER
SPC700 CPU CORE
CLOCK GEN./ SYSTEM CONTROL
ROM 20K/24K BYTES
RAM 448 BYTES
PRESCALER/ TIME BASE TIMER
14BIT PWM
6BIT PWM 8CH
PORTA
PORTB
PORTC
PORTD
PORTE
PORTF
PA0 – PA7
PB0 – PB7
PC0 – PC7
PD0 – PD7
PE0 – PE5
PE6 – PE7
PF0 – PF7
PE6/PWM
PF0/PWM0 – PF7/PWM7

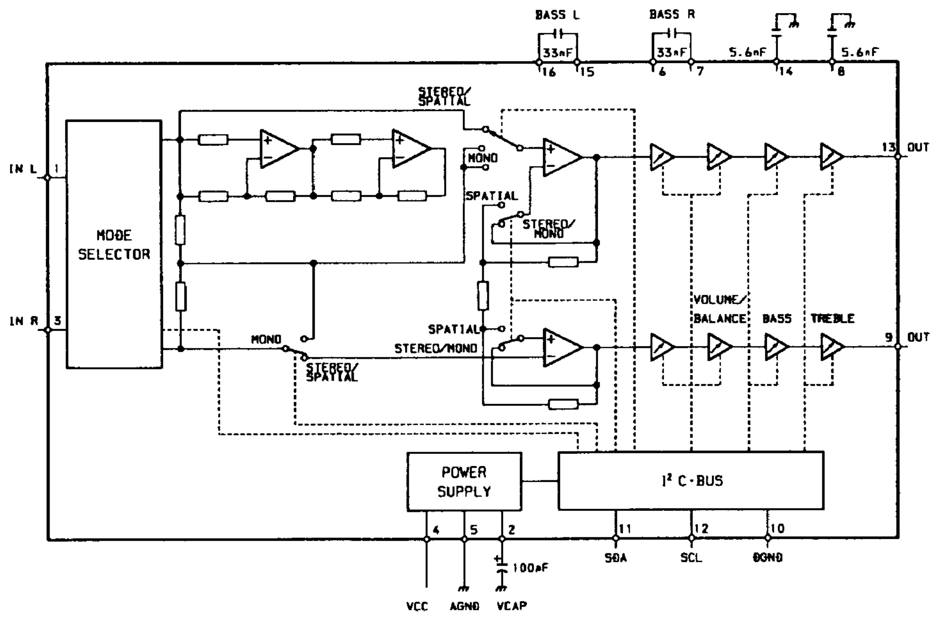
• M Board IC150 MC144143


11
CLAMP
DATA SLICER
SLICED DATA
DATA RECOVERY
DATA MODULATOR AND TRANSFER BUFFER
DCLK
DATA CLK RECOVERY
12
SYNC SLICER
COMMAND PROCESSOR
DISPLAY RAM
COMP SYNC
TIMING LOGIC
CHARACTER ROM
LOCK
VERTICAL COUNTER AND CONTROL
HORIZONTAL COUNTER
DOT CLK
OUTPUT LOGIC
5
6
7
4
3
DECODER CONTROL
8
PHASE/ FREQUENCY DETECTOR
LOOP FILTER
VCO
13
2
16
1
17
18

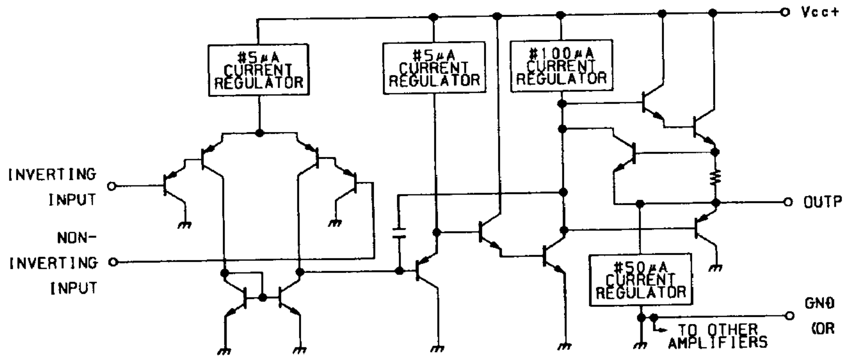
• M Board IC301 CXA1468AS


SDA
SCL
D GND
REG
IREF (J)
H SYNC
AFC
DC TH
H GND
V SYNC
V HOLD
VP I/O
V BLK
V OSC
V AGC
V LPF
VD
E/W
ABL FIL
ABL IN
IK
REGULATOR
I²C BUS DECODER
I REF J
COINCIDENCE DET.
H. VCO
H.SYNC SEP.
PHASE SEP.
BURST GATE
B.G.
AFC 1.0
D/A
H-FREQ
ALING
H CENT
H LOCKN
PHASE DET.
PHASE SHIFT
H. DRIVE
H. BLKL
RGB CLAMP
H.BLK
H-PHASE
V.SYNC SEP.
V. OSC
V. AGC
VT RGB
VSMD
V-FREQ
AKB TIMING GENERATOR
REF 1.0
V.SAWTOOTH GENERATOR
S CORRECTION
V-SHIFT
V-SIZE
V-LINEARITY
V.PARABOLA GENERATOR
CORNER PIN
PIN PHASE
PIN AMP
H-SIZE
OFF NV
ABL AMP
BLM
V. ZOOMING
V-COMP
PICTURE
RGB PICTURE
OFF CT
CHROMA TRAP
SHARPNESS
CHROMA NOTCH
SWITCH
DELAY LINE
SHARPNESS CONT.
CLAMP
AUTO OPEDESTAL
CONTRAST CONT.
YC MIX
Ym
RGB 1.0
RGB SWITCH
OFF TOT
SATURATION
TOT
AUTO COLOR CONT.
ACC DET.
SATURATION CONT.
COLOR KILLER
CHROMA DET.
PHASE DET.
LAG LEAD FILTER
HUE
HUE CONT.
CHROMA VCO
PHASE SHIFT
IREF Y
Y'a
Y'b
OSD BLK CONT.
CONTRAST CONT.
ORGBP
ON SCREEN DISPLAY
DY COL
NEW DYNAMIC COLOR
BRIGHTNESS
BRIGHTNESS CONT.
G CUT OFF
G AMP
B AMP
B CUT OFF
IK
IK DET
RGB DRIVE AMP
DC LEVEL SHIFT
P MUTE
OFF NR
OFF NG
OFF NB
BLK CONT.
BLK
LEAKAGE COMPENSATION
S/H
IREF (Y)
Ya
Y IN
Y CLAMP
C IN
APC
X'TAL
BL HOLD
OSD BLK
O B IN
O G IN
O R IN
V GND
Ym
Ys
A R IN
A G IN
A B IN
R S/H
G S/H
B S/H
R OUT
G OUT
B OUT

• M Board IC201 TDA8424


BASS L
BASS R
TREBLE L
TREBLE R
33nF
33nF
5.6nF
5.6nF
16
15
6
7
14
8
IN L
1
IN R
3
MODE SELECTOR
STEREO/ SPATIAL
MONO
SPATIAL
STEREO/ MONO
SPATIAL
STEREO/MONO
MONO
STEREO/ SPATIAL
VOLUME/ BALANCE
BASS
TREBLE
13
OUT L
9
OUT R
POWER SUPPLY
I² C-BUS
4
5
2
11
12
10
100μF
VCC
AGND
VCAP
SDA
SCL
DGND

• M Board IC202 LM358PS-T1


Vcc+
#5μA CURRENT REGULATOR
#5μA CURRENT REGULATOR
#100μA CURRENT REGULATOR
INVERTING INPUT
NON-INVERTING INPUT
OUTPUT
#50μA CURRENT REGULATOR
GND (OR Vcc-)
TO OTHER AMPLIFIERS

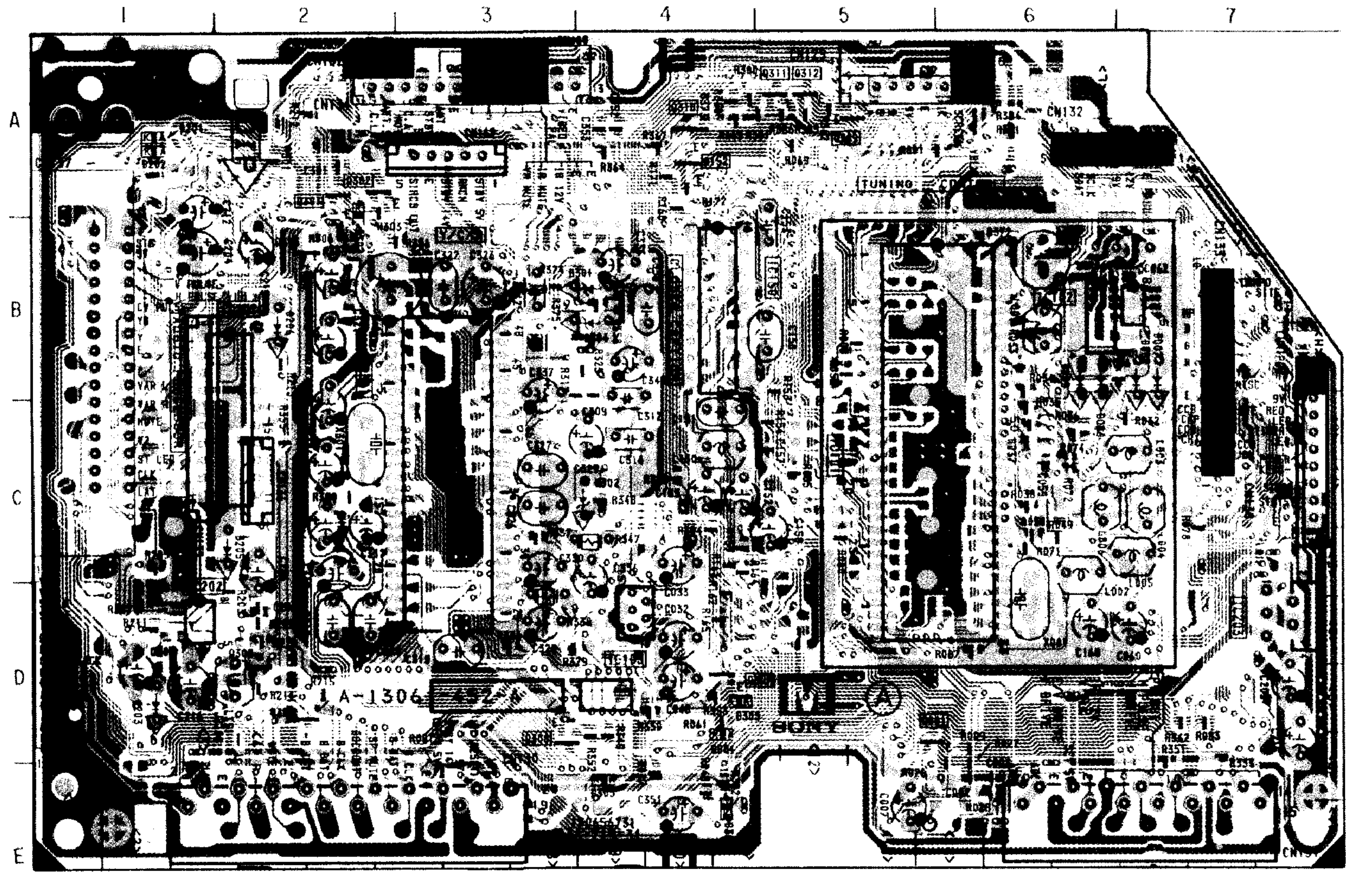
IC		DIODE	
IC101	C – 6, H – 6	D001	F – 5
IC102	B – 6, H – 6	D002	F – 5
IC103	D – 4, G – 4	D004	D – 4
IC150	B – 4, H – 4	D005	G – 6
IC201	B – 2, H – 2	D006	B – 6, H – 6
IC202	D – 1	D007	B – 7, H – 7
IC301	B – 3, G – 3	D008	B – 7, H – 7
TRANSISTOR		D009	B – 6, H – 6
Q001	D – 6	D150	G – 4
Q004	G – 6	D201	A – 1
Q005	H – 6	D202	A – 1
Q151	G – 5	D205	C – 2, G – 2
Q201	I – 1	D206	B – 2, H – 2
Q301	A – 2	D301	B – 4, H – 4
Q302	A – 2	D304	B – 4, H – 4
Q308	D – 3		

M [Y/C/J,
CONTROL AUDIO,
CONTROL CLOSED CAPATION]

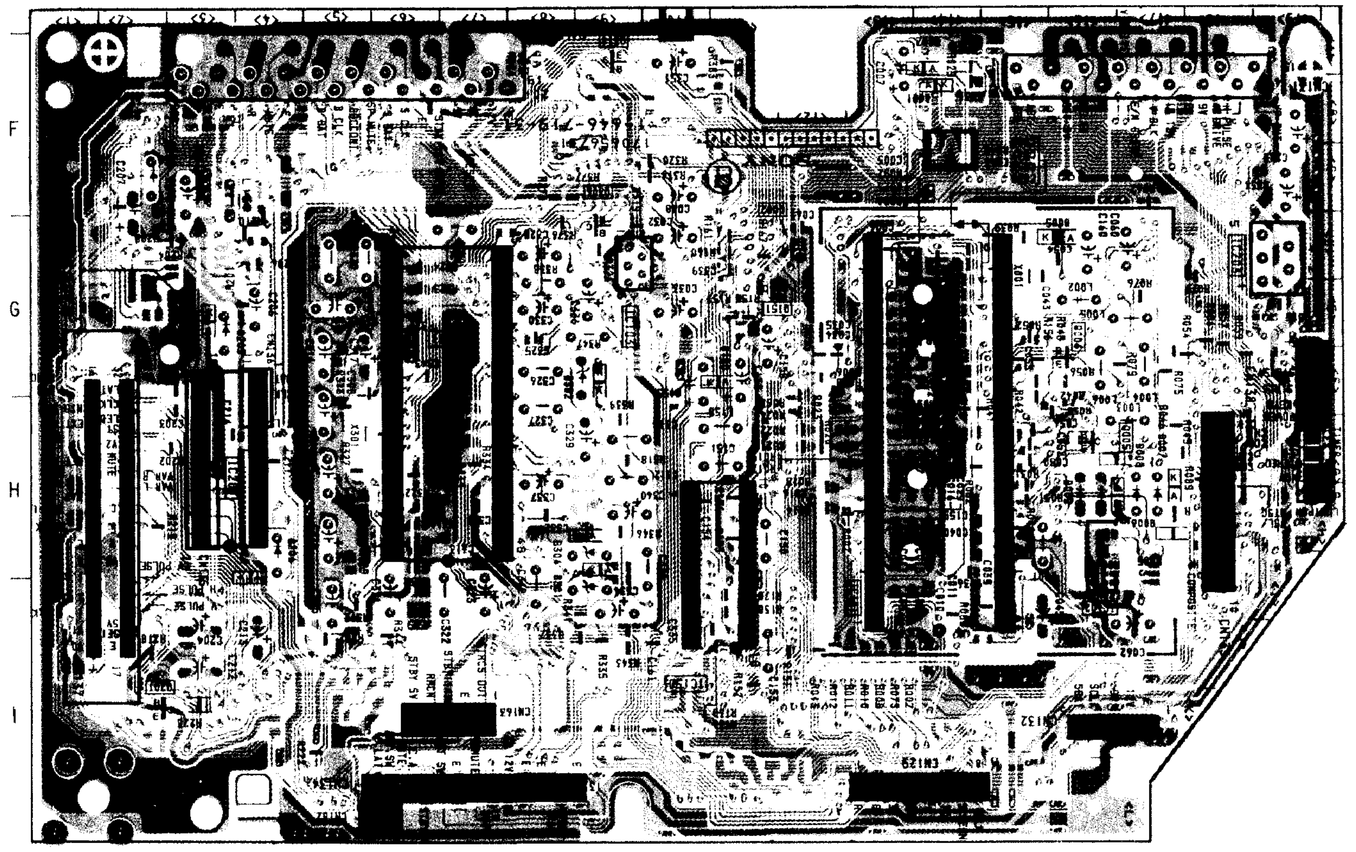
Note :
- : Pattern from the side which enables seeing.
- ▨ : Pattern of the rear side.

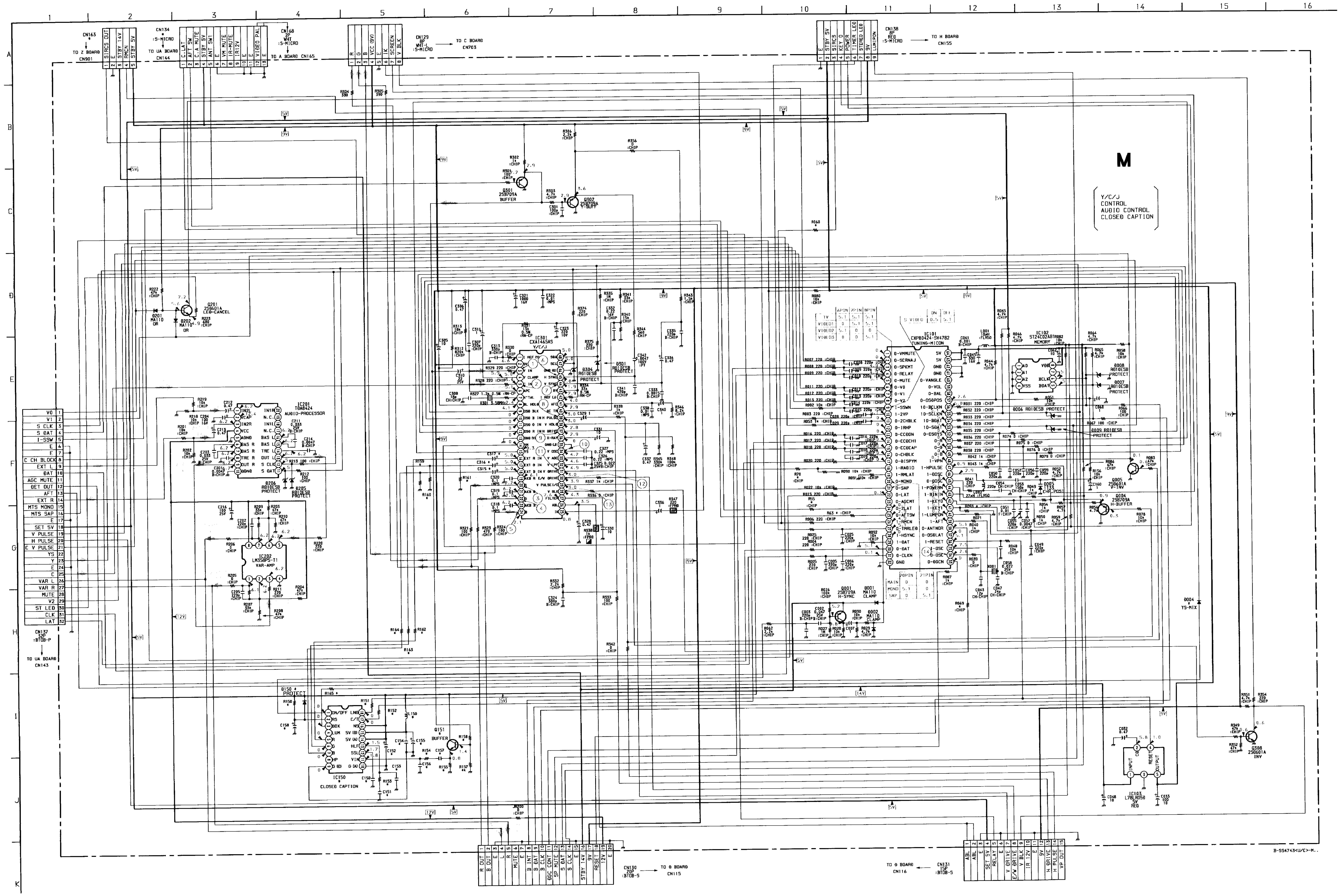
– M BOARD –

⟨Component Side⟩


1
2
3
4
5
6
7
A
B
C
D
E

⟨Conductor Side⟩



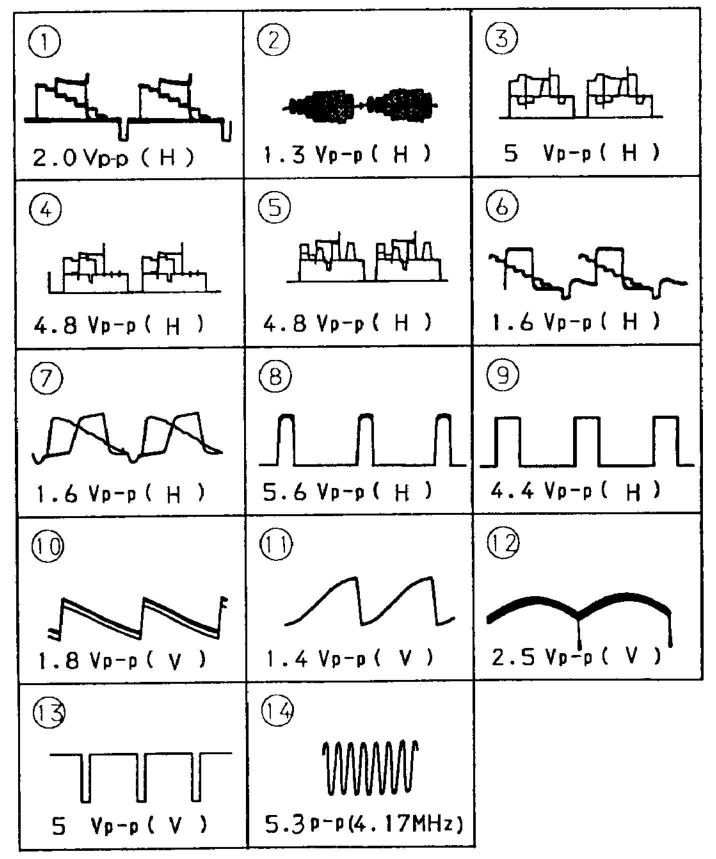

M
Y/C/J
CONTROL
AUDIO CONTROL
CLOSED CAPTION
CN165 TO Z BOARD CN901
CN134 TO UA BOARD CN144
CN168 TO A BOARD CN165
CN129 TO C BOARD CN703
CN138 TO H BOARD CN155
CN137 TO UA BOARD CN143
CN130 TO B BOARD CN115
CN131 TO B BOARD CN116
IC301 CXA1445AS Y/C/J
IC101 CXP80424-SV4782 TUNING-MICON
IC102 MEMORY
IC201 TDA8424 AUDIO-PROCESSOR
IC202 LM358PS-T1 VAR-AMP
IC150 CLOSED CAPTION
Q151 BUFFER
Q301 2SB709A BUFFER
Q201 2SD601A LEO-CANCEL
B-554743(U/E)-M..

– M BOARD –

Ref	LOCATION	KV-27V10/ 27V15/32V15	KV-29V10C/ 10M
C150	J – 5	0.1	–
C151	J – 5	0.0068	–
C152	I – 5	10	–
C153	I – 5	0.0033	–
C154	I – 5	0.1 /25V	–
C155	I – 5	10	–
C156	I – 6	560P	–
C157	I – 6	0.1 / 25V	–
C158	I – 4	1	–
C315	F – 6	10	–
C316	F – 6	10	–
C317	F – 6	10	–
CN134	A – 3	6P	–
CN163	A – 2	5P	–
D004	G – 15	MA110	–
D150	H – 4	MA110	–
IC150	I – 4	MC144143	–
L150	I – 5	10 µH	–
Q151	I – 6	2SD601A	–
R055	F – 10	220	–
R060	C – 10	18K	0
R063	F – 10	220	–
R069	G – 12	220	–
R070	F – 10	1K	–
R090	F – 10	–	–
R150	H – 4	100K	–
R151	I – 5	1K	–
R152	I – 5	1K	–
R153	I – 5	6.8K	–
R154	I – 5	470	–
R155	I – 6	1K	–
R157	I – 6	10K	–
R158	I – 6	10K	–
R159	F – 5	1K	–
R160	F – 5	1K	–
R161	F – 6	1K	–
R162	G – 5	4.7K	–
R163	H – 5	4.7K	–
R164	H – 5	4.7K	–
R165	H – 4	4.7K	–
R166	I – 4	1K	–
R168	I – 4	1K	–

– : NOT MOUNT

• M BOARD WAVEFORMS



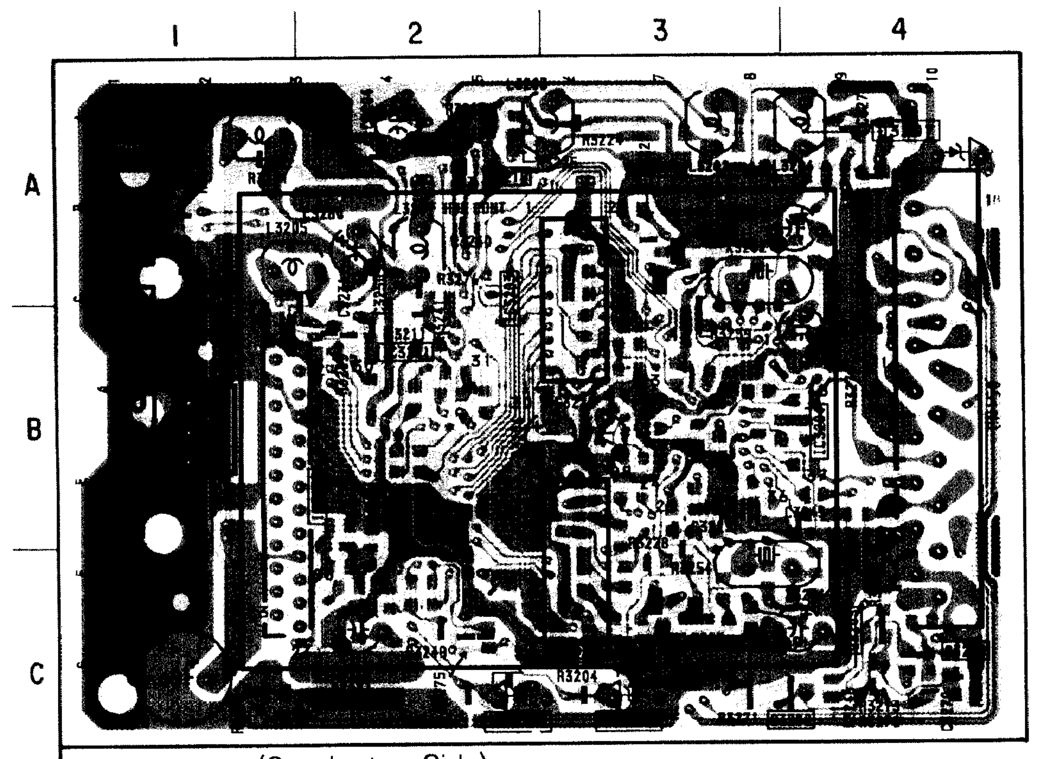
P [PICTURE IN PICTURE] H [USER CONTROL]

– P BOARD – (Component Side) **(KV-27V15/32V15 only)**

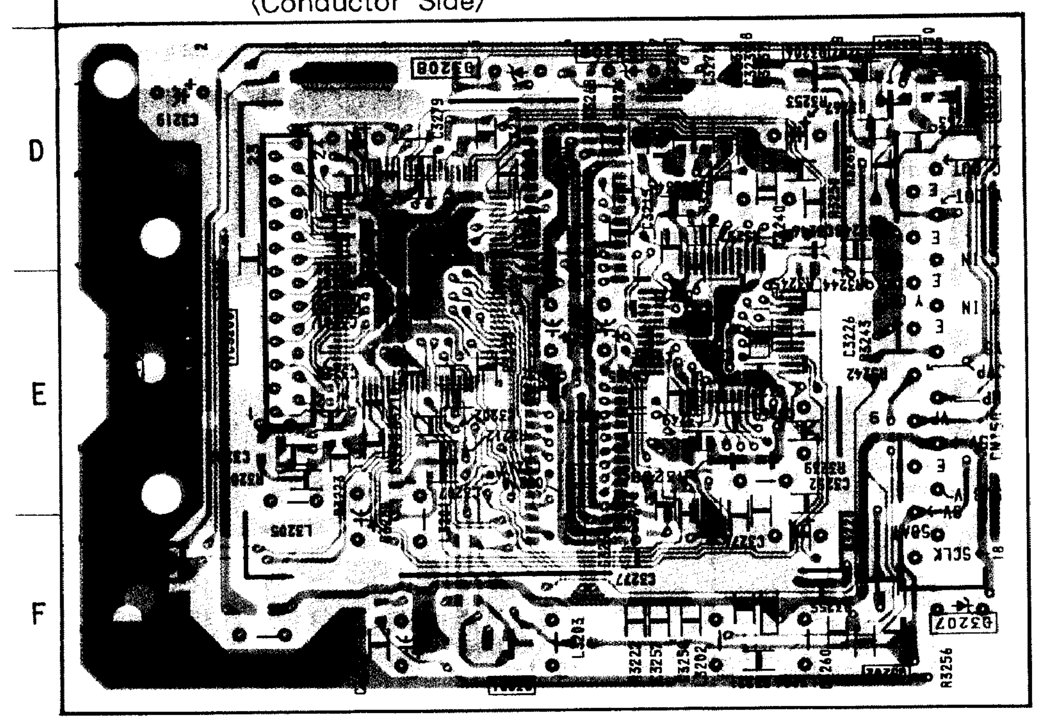
IC	
IC3200	B – 1, E – 1
IC3201	B – 1
IC3202	C – 3
IC3203	A – 3
IC3204	B – 3
IC3205	B – 1

TRANSISTOR	
Q3201	F – 2
Q3202	F – 4
Q3203	C – 4
Q3204	D – 4
Q3206	D – 4
Q3207	D – 4
Q3208	C – 4
Q3209	C – 9
Q3210	A – 2

DIODE	
D3202	B – 1
D3203	D – 2
D3208	C – 2, D – 2
D3209	C – 3, D – 3

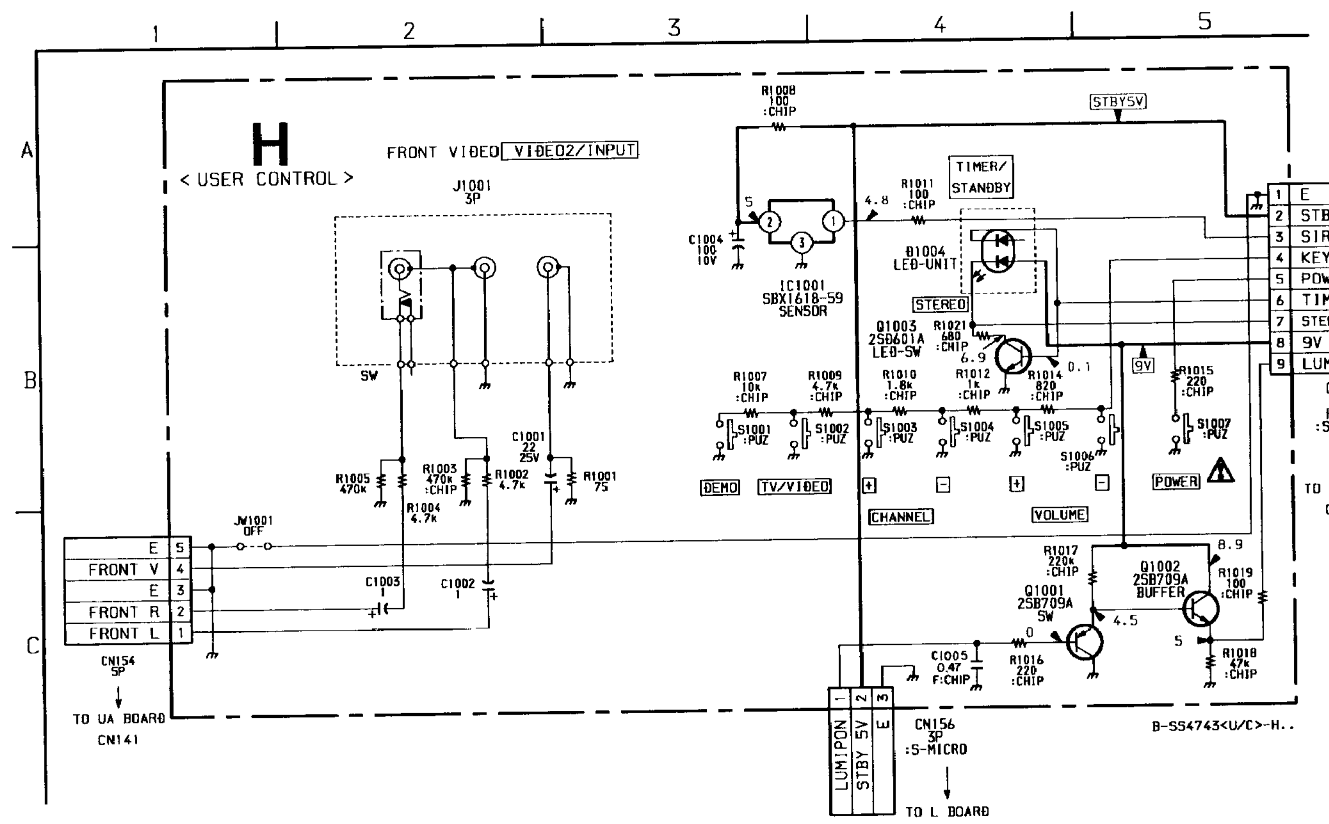

1
2
3
4
A
B
C
R3204

(Conductor Side)


D
E
F
C3226
C3227
L3203
Q3207
R3256

Note :

- ░ : Pattern from the side which enables seeing.
- ▓ : Pattern of the rear side.


1
2
3
4
5
A
B
C
H
< USER CONTROL >
FRONT VIDEO VIDEO2/INPUT
J1001
3P
SW
IC1001
SBX1618-59
SENSOR
TIMER/
STANDBY
D1004
LED-UNIT
STEREO
Q1003
2SD601A
LED-SW
DEMO
TV/VIDEO
CHANNEL
VOLUME
POWER
STBY5V
9V
Q1001
2SB709A
SW
Q1002
2SB709A
BUFFER
E 5
FRONT V 4
E 3
FRONT R 2
FRONT L 1
CN154
5P
TO UA BOARD
CN141
1 E
2 STBY 5V
3 SIRCS
4 KEY 0
5 POWER
6 TIMER LED
7 STEREO LED
8 9V
9 LUMIPON
CN155
9P
RED-L
:S-MICRO
TO M BOARD
CN138
LUMIPON
STBY 5V
E
CN156
3P
:S-MICRO
TO L BOARD
CN1903
B-SS4743<U/C>-H..

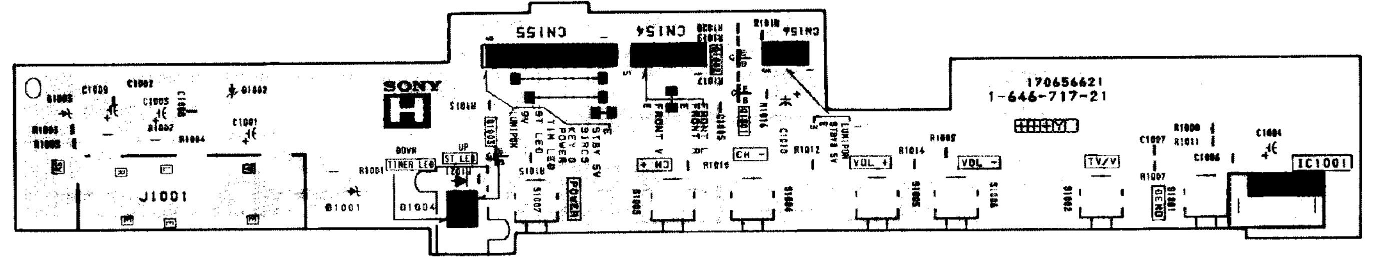
Schematic diagrams

← M board

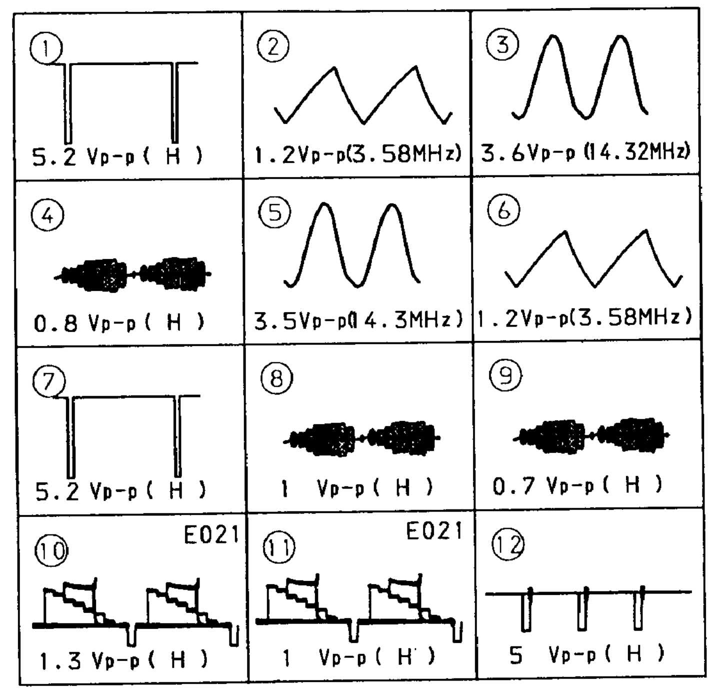
Schematic diagrams

H P boards →

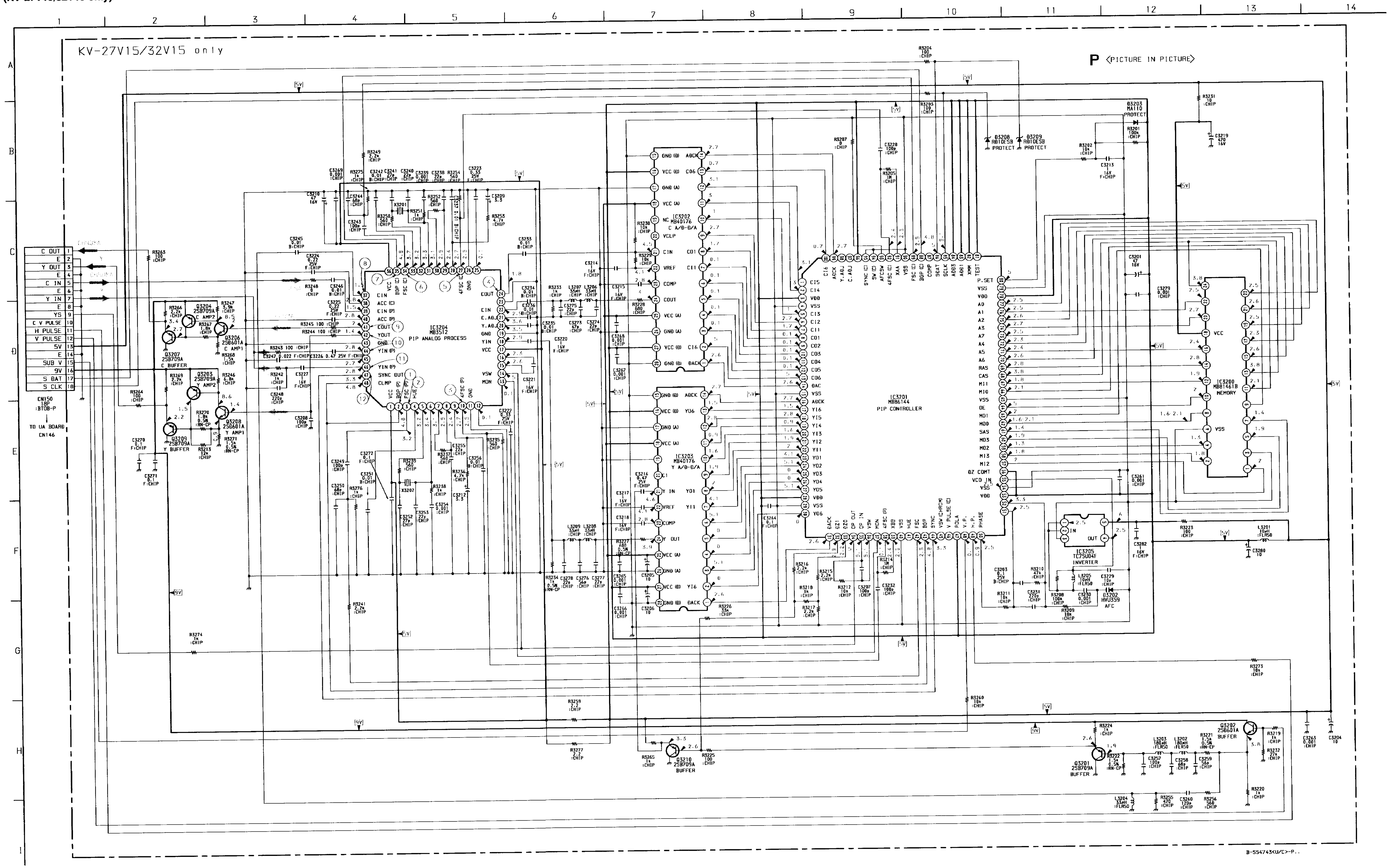
– H BOARD – (Conductor Side)


CN155
CN154
CN156
SONY
H
J1001
1-646-717-21
IC1001

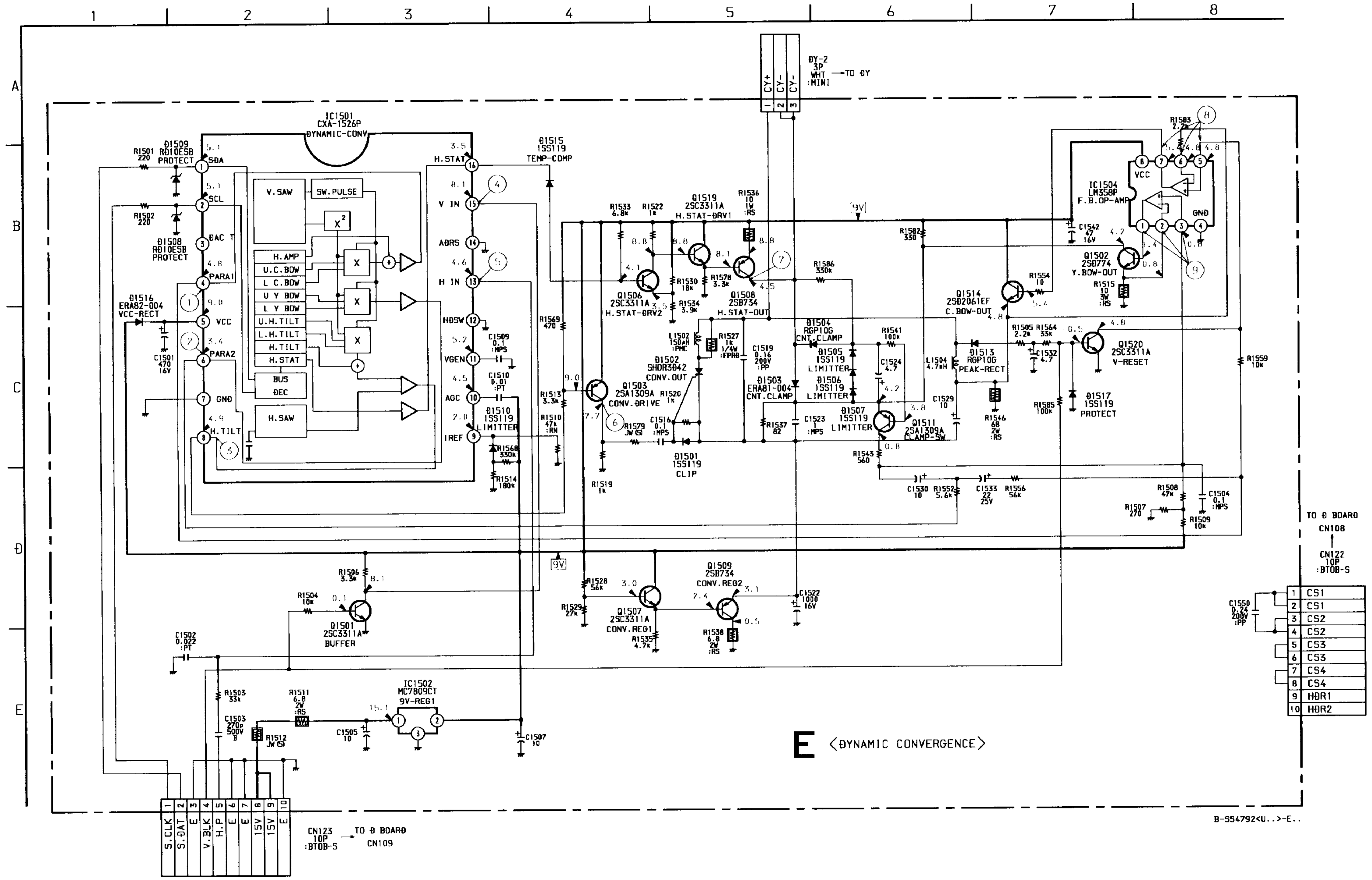
• P BOARD WAVEFORMS



(KV-27V15/32V15 only)


1
2
3
4
5
6
7
8
9
10
11
12
13
14
A
B
C
D
E
F
G
H
I
KV-27V15/32V15 only
P <PICTURE IN PICTURE>
C OUT 1
E 2
Y OUT 3
E 4
C IN 5
E 6
Y IN 7
E 8
YS 9
C V PULSE 10
H PULSE 11
V PULSE 12
5V 13
E 14
SUB V 15
9V 16
S DAT 17
S CLK 18
CN150
18P
:BTOB-P
TO UA BOARD
CN146
IC3204
MB3517
PIP ANALOG PROCESS
IC3202
MB40176
C A/D-D/A
IC3203
MB40176
Y A/D-D/A
IC3201
MB86144
PIP CONTROLLER
IC3200
MB81461B
MEMORY
IC3205
TC7SU04F
INVERTER
Q3202
2SB709A
BUFFER
Q3201
2SB709A
BUFFER
Q3210
2SB709A
BUFFER
B-SS4743<U/C>-P..

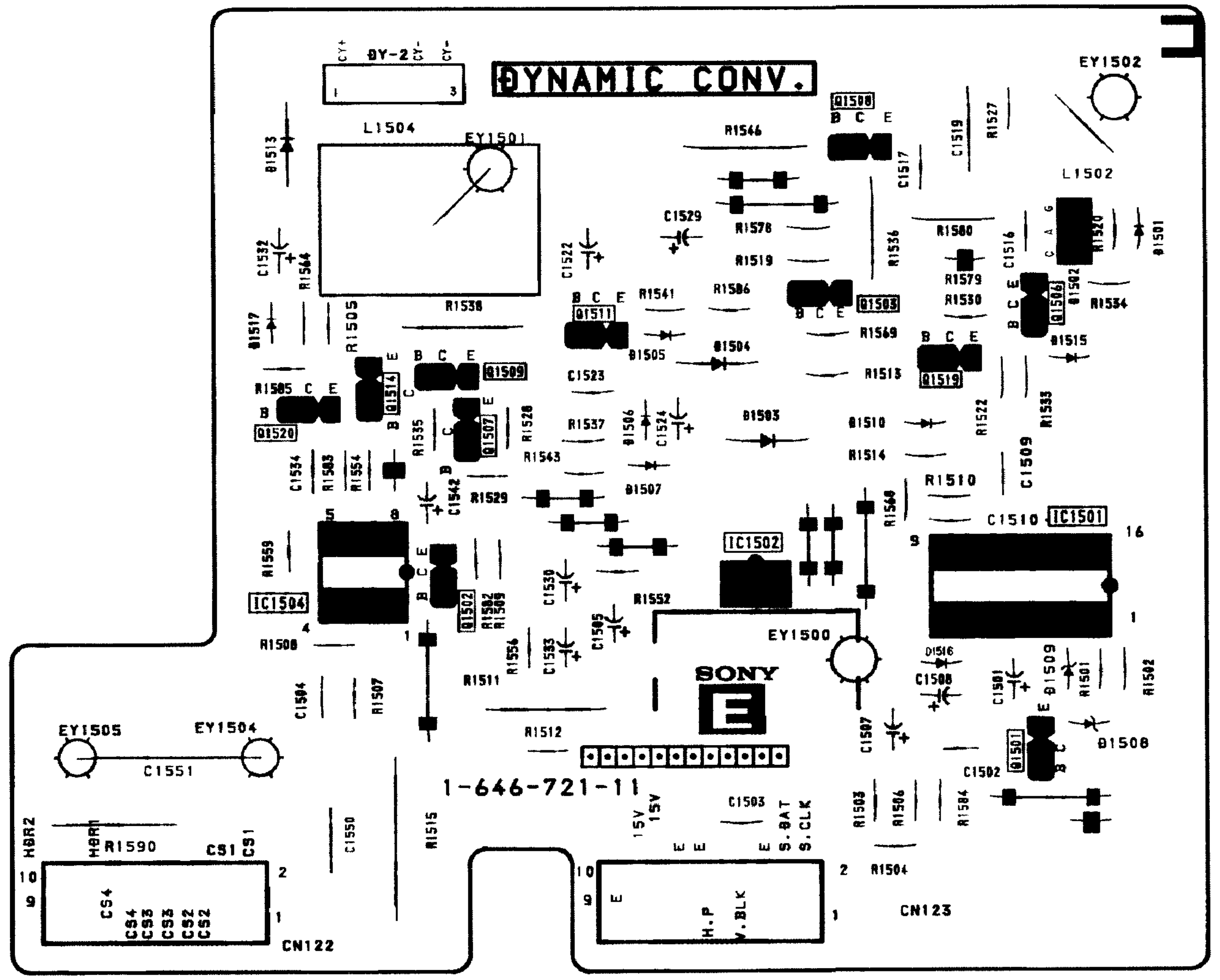
(KV-32V15 only)


IC1501 CXA-1526P DYNAMIC-CONV
IC1502 MC7809CT 9V-REG1
IC1504 LM358P F.B.OP-AMP
BY-2 3P WHT :MINI → TO BY
TO B BOARD CN108
CN122 10P :BTOB-S
CS1
CS1
CS2
CS2
CS3
CS3
CS4
CS4
HBR1
HBR2
CN123 10P :BTOB-S → TO B BOARD CN109
S.CLK
S.DAT
E
V.BLK
H.P
E
E
15V
15V
E
E ⟨DYNAMIC CONVERGENCE⟩
B-S54792<U..>-E..

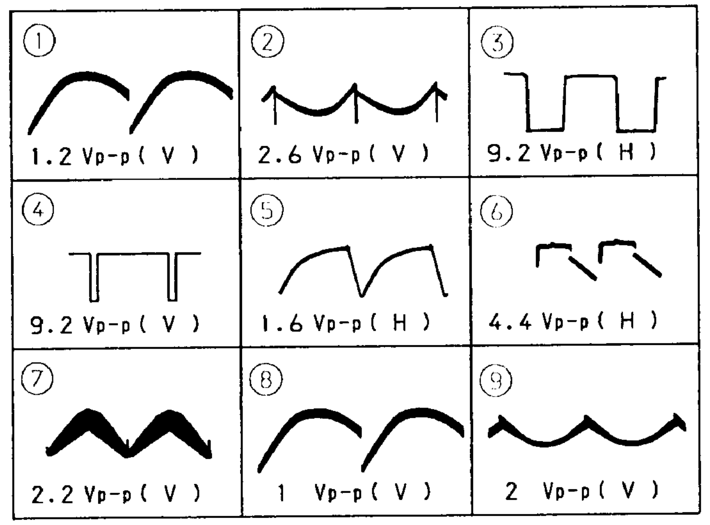
E [DYNAMIC CONVERGENCE]

– E BOARD – ⟨Conductor Side⟩

(KV-32V15 only)


DYNAMIC CONV.
BY-2
EY1502
L1504
EY1501
L1502
IC1504
IC1502
IC1501
EY1500
SONY
E
EY1505
EY1504
C1551
1-646-721-11
CN122
CN123

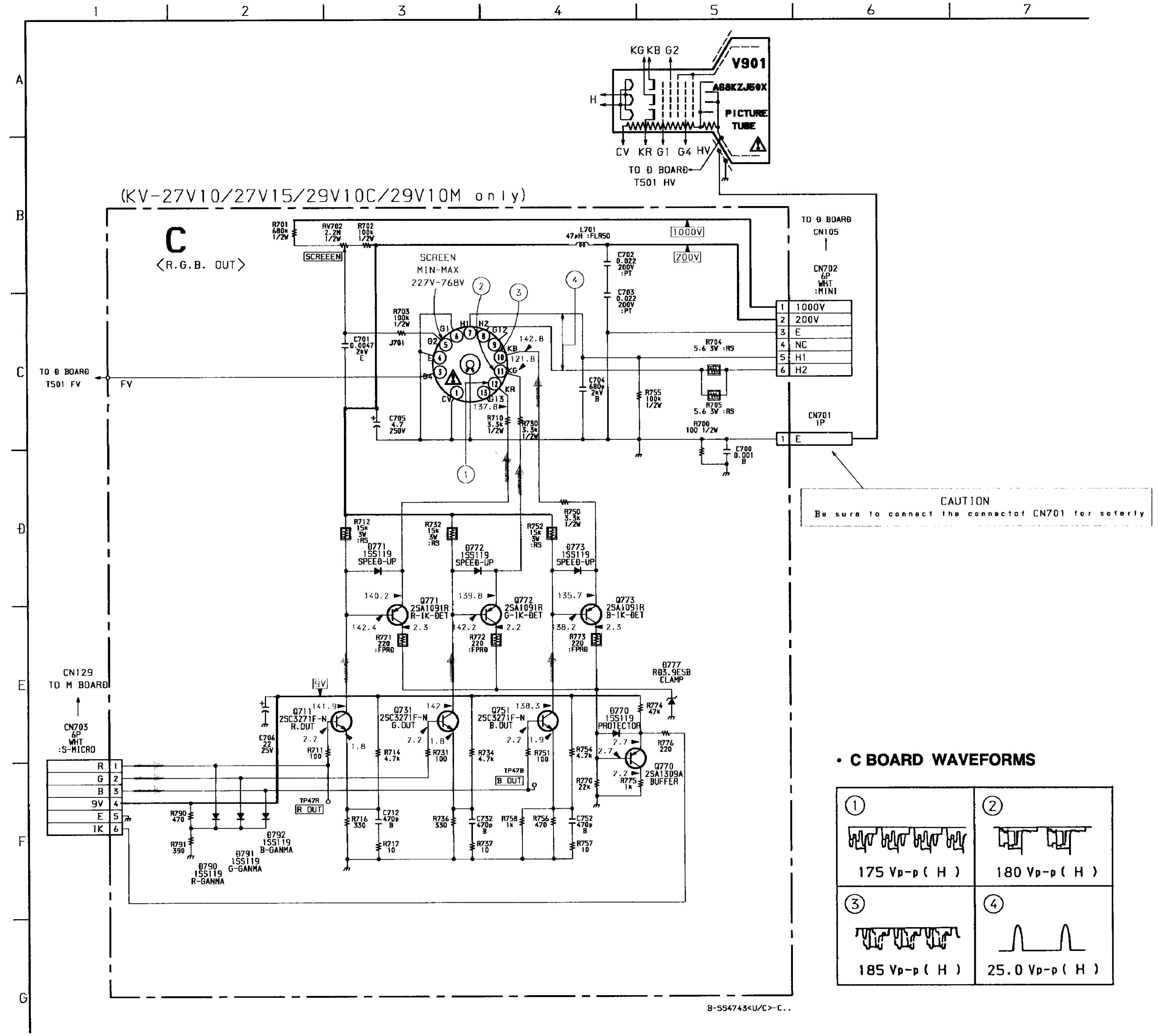
• E BOARD WAVEFORMS



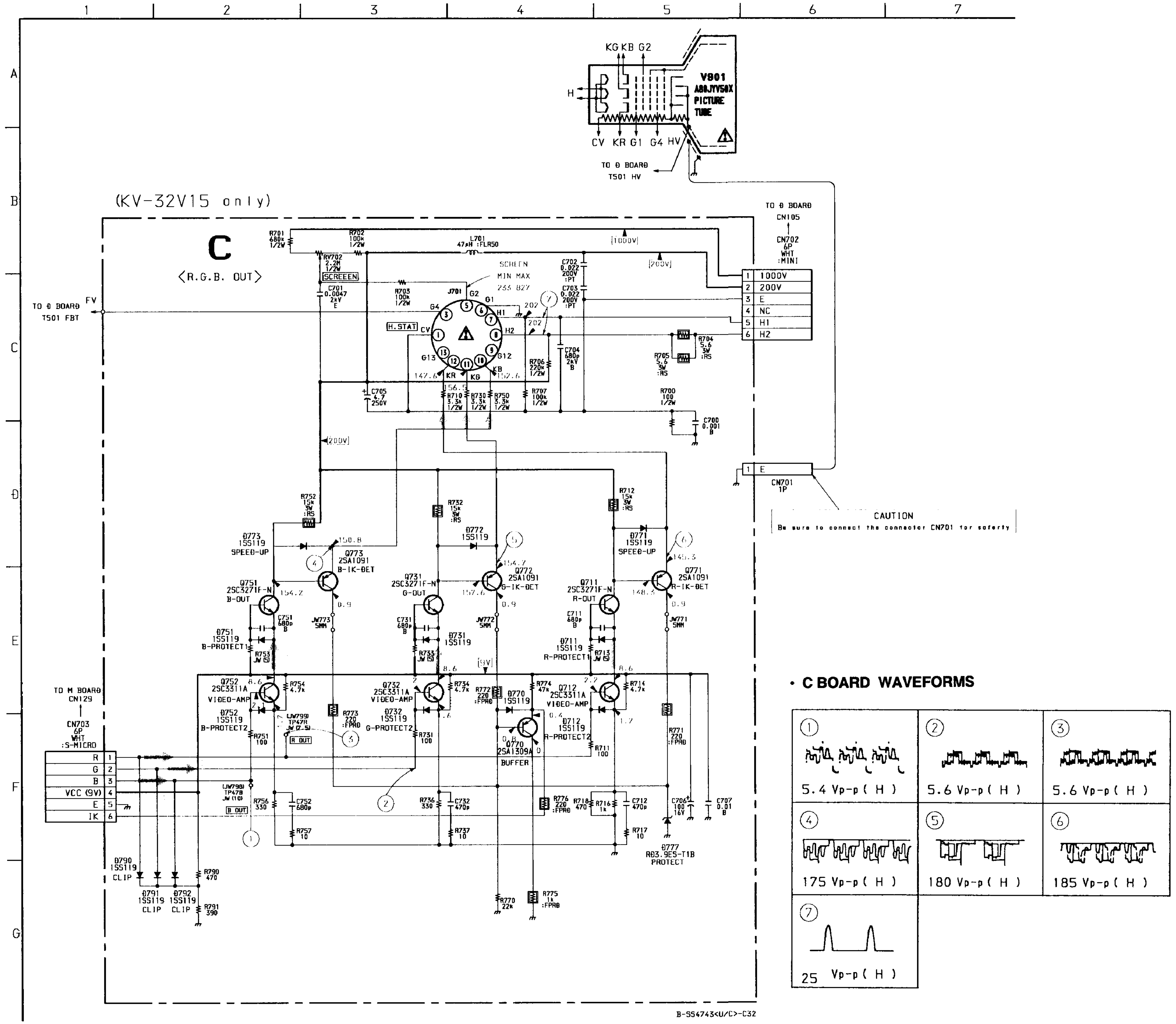
Schematic diagrams
← E board

Schematic diagrams
C board →

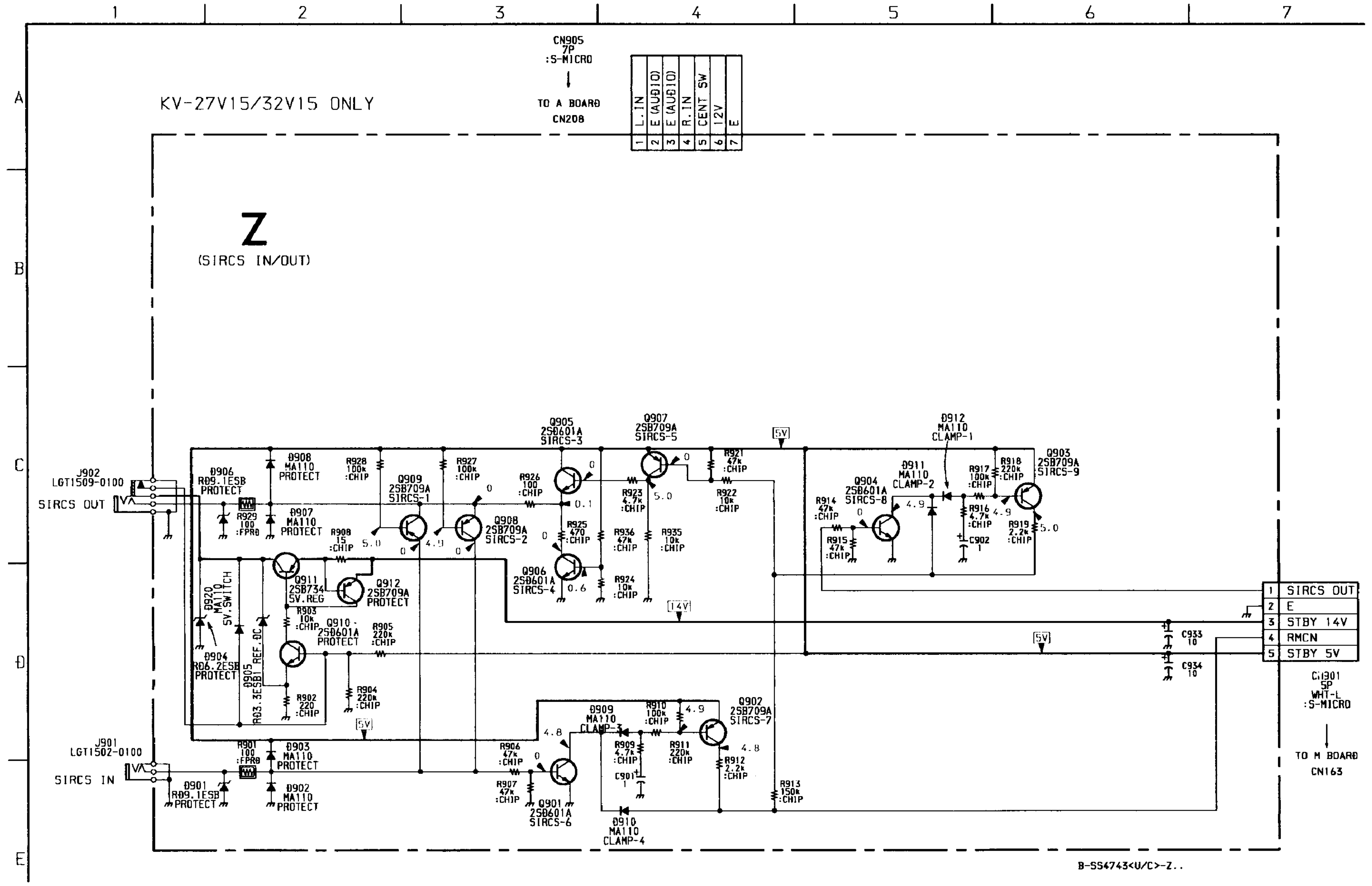
(KV-27V10/27V15/29V10C/29V10M only)

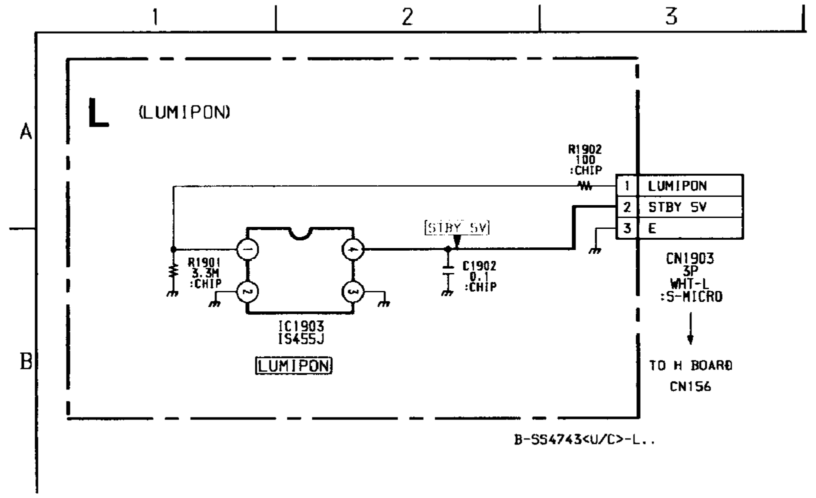

1
2
3
4
5
6
7
A
B
C
D
E
F
G
KG KB G2
H
V901
A68KZJ50X
PICTURE TUBE
CV KR G1 G4 HV
TO D BOARD T501 HV
(KV-27V10/27V15/29V10C/29V10M only)
C
<R.G.B. OUT>
R701 680k 1/2W
RV702 2.2M 1/2W
R702 100k 1/2W
SCREEEN
L701 47μH :FLR50
1000V
200V
TO D BOARD CN105
CN702 6P WHT :MINI
1 1000V
2 200V
3 E
4 NC
5 H1
6 H2
SCREEN MIN-MAX 227V-768V
C702 0.022 200V :PT
C703 0.022 200V :PT
R703 100k 1/2W
C701 0.0047 2kV E
J701
G1 G2 H1 H2 G12 KB KG KR G13 CV G4
142.8
121.8
137.8
R704 5.6 3W :RS
R705 5.6 3W :RS
C704 680p 2kV B
R755 100k 1/2W
R700 100 1/2W
C700 0.001 B
CN701 1P
1 E
TO D BOARD T501 FV
FV
C705 4.7 250V
R710 3.3k 1/2W
R730 3.3k 1/2W
R750 3.3k 1/2W
CAUTION
Be sure to connect the connector CN701 for safety
R712 15k 3W :RS
R732 15k 3W :RS
R752 15k 3W :RS
D771 1SS119 SPEED-UP
D772 1SS119 SPEED-UP
D773 1SS119 SPEED-UP
140.2
139.8
135.7
Q771 2SA1091R R-IK-DET
Q772 2SA1091R G-IK-DET
Q773 2SA1091R B-IK-DET
142.4
142.2
138.2
2.3
2.2
2.3
R771 220 :FPRD
R772 220 :FPRD
R773 220 :FPRD
D777 RD3.9ESB CLAMP
CN129 TO M BOARD
CN703 6P WHT :S-MICRO
R 1
G 2
B 3
9V 4
E 5
IK 6
9V
C706 22 25V
Q711 2SC3271F-N R.OUT
Q731 2SC3271F-N G.OUT
Q751 2SC3271F-N B.OUT
141.9
142
138.3
2.2
1.8
1.9
R711 100
R714 4.7k
R731 100
R734 4.7k
R751 100
R754 4.7k
TP47R R OUT
TP47B B OUT
D770 1SS119 PROTECTOR
R774 47k
R776 220
Q770 2SA1309A BUFFER
2.7
R770 22k
R775 1k
R790 470
R791 390
D790 1SS119 R-GANMA
D791 1SS119 G-GANMA
D792 1SS119 B-GANMA
R716 330
C712 470p B
R717 10
R736 330
C732 470p B
R737 10
R758 1k
R756 470
C752 470p B
R757 10
• C BOARD WAVEFORMS
① 175 Vp-p (H)
② 180 Vp-p (H)
③ 185 Vp-p (H)
④ 25.0 Vp-p (H)
B-SS4743<U/C>-C..

(KV-32V15 only)


1
2
3
4
5
6
7
A
B
C
D
E
F
G
KG KB G2
H
V901
A80JYV50X
PICTURE TUBE
CV KR G1 G4 HV
TO D BOARD T501 HV
(KV-32V15 only)
C
<R.G.B. OUT>
R701 680k 1/2W
R702 100k 1/2W
RV702 2.2M 1/2W
SCREEEN
L701 47μH :FLR50
1000V
200V
TO D BOARD CN105
CN702 6P WHT :MINI
1 1000V
2 200V
3 E
4 NC
5 H1
6 H2
SCREEN MIN MAX 233 827
TO D BOARD T501 FBT
FV
C701 0.0047 2kV E
R703 100k 1/2W
J701
G2 G1 G4 H1 H2 CV G12 G13 KR KG KB
H.STAT
202
147.6
156.5
152.6
C702 0.022 200V :PT
C703 0.022 200V :PT
C704 680p 2kV B
R706 220k 1/2W
R707 100k 1/2W
R704 5.6 3W :RS
R705 5.6 3W :RS
R700 100 1/2W
C700 0.001 B
C705 4.7 250V
R710 3.3k 1/2W
R730 3.3k 1/2W
R750 3.3k 1/2W
200V
CN701 1P
1 E
CAUTION
Be sure to connect the connector CN701 for safety
R752 15k 3W :RS
R732 15k 3W :RS
R712 15k 3W :RS
D773 1SS119 SPEED-UP
D772 1SS119
D771 1SS119 SPEED-UP
150.8
Q773 2SA1091 B-IK-DET
Q772 2SA1091 G-IK-DET
Q771 2SA1091 R-IK-DET
154.7
145.3
Q751 2SC3271F-N B-OUT
Q731 2SC3271F-N G-OUT
Q711 2SC3271F-N R-OUT
154.2
157.6
148.3
0.9
C751 680p B
C731 680p B
C711 680p B
JW773 5MM
JW772 5MM
JW771 5MM
D751 1SS119 B-PROTECT1
D731 1SS119
D711 1SS119 R-PROTECT1
R753 JW (5)
R733 JW (5)
R713 JW (5)
9V
8.6
Q752 2SC3311A VIDEO-AMP
Q732 2SC3311A VIDEO-AMP
Q712 2SC3311A VIDEO-AMP
R754 4.7k
R734 4.7k
R714 4.7k
R774 47k
R772 220 :FPRD
D770 1SS119
D752 1SS119 B-PROTECT2
D732 1SS119 G-PROTECT2
D712 1SS119 R-PROTECT2
R773 220 :FPRD
(JW799) TP47R JW (2.5)
R OUT
R751 100
R731 100
R711 100
Q770 2SA1309A BUFFER
0.4
0.8
R771 220 :FPRD
TO M BOARD CN129
CN703 6P WHT :S-MICRO
R 1
G 2
B 3
VCC (9V) 4
E 5
IK 6
(JW798) TP47B JW (10)
B OUT
R756 330
C752 680p
R757 10
R736 330
C732 470p
R737 10
R776 220 :FPRD
R718 470
R716 1k
C712 470p
R717 10
C706 100 16V
C707 0.01 B
D777 RD3.9ES-T1B PROTECT
D790 1SS119 CLIP
D791 1SS119 CLIP
D792 1SS119 CLIP
R790 470
R791 390
R770 22k
R775 1k :FPRD
• C BOARD WAVEFORMS
① 5.4 Vp-p (H)
② 5.6 Vp-p (H)
③ 5.6 Vp-p (H)
④ 175 Vp-p (H)
⑤ 180 Vp-p (H)
⑥ 185 Vp-p (H)
⑦ 25 Vp-p (H)
B-SS4743<U/C>-C32

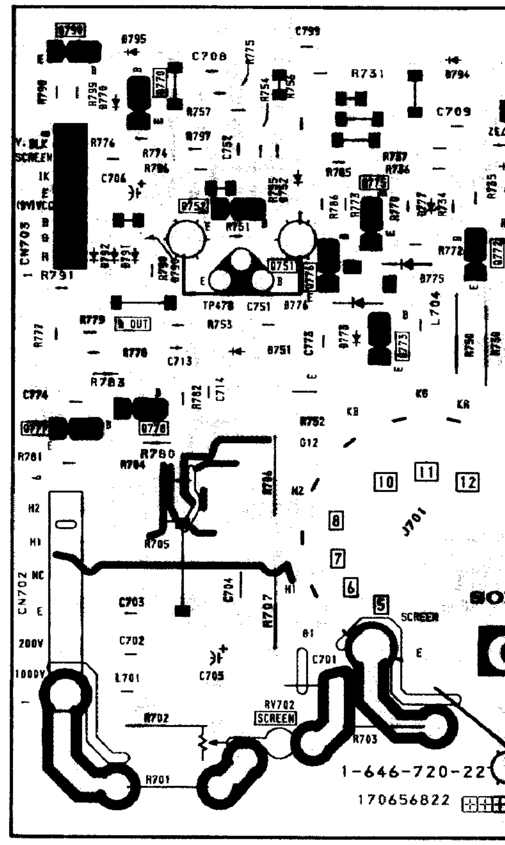
(KV-27V15/32V15 only)


1
2
3
4
5
6
7
A
B
C
D
E
KV-27V15/32V15 ONLY
Z
(SIRCS IN/OUT)
CN905
7P
:S-MICRO
TO A BOARD
CN208
1 L.IN
2 E(AUDIO)
3 E(AUDIO)
4 R.IN
5 CENT SW
6 12V
7 E
J902
LGT1509-0100
SIRCS OUT
D906
RD9.1ESB
PROTECT
R929
100
:FPRD
D908
MA110
PROTECT
D907
MA110
PROTECT
R928
100k
:CHIP
R927
100k
:CHIP
Q909
2SB709A
SIRCS-1
Q908
2SB709A
SIRCS-2
R908
15
:CHIP
Q905
2SD601A
SIRCS-3
Q907
2SB709A
SIRCS-5
Q906
2SD601A
SIRCS-4
R926
100
:CHIP
R925
470
:CHIP
R923
4.7k
:CHIP
R936
47k
:CHIP
R935
10k
:CHIP
R924
10k
:CHIP
R921
47k
:CHIP
R922
10k
:CHIP
5V
14V
D920
MA110
5V.SWITCH
D904
RD6.2ESB
PROTECT
D905
RD3.3ESB1 REF.DC
Q911
2SB734
5V.REG
Q912
2SB709A
PROTECT
R903
10k
:CHIP
Q910
2SD601A
PROTECT
R905
220k
:CHIP
R904
220k
:CHIP
R902
220
:CHIP
J901
LGT1502-0100
SIRCS IN
R901
100
:FPRD
D901
RD9.1ESB
PROTECT
D903
MA110
PROTECT
D902
MA110
PROTECT
R906
47k
:CHIP
R907
47k
:CHIP
Q901
2SD601A
SIRCS-6
D909
MA110
CLAMP-3
R909
4.7k
:CHIP
C901
1
R910
100k
:CHIP
R911
220k
:CHIP
Q902
2SB709A
SIRCS-7
R912
2.2k
:CHIP
D910
MA110
CLAMP-4
R913
150k
:CHIP
D912
MA110
CLAMP-1
D911
MA110
CLAMP-2
Q904
2SD601A
SIRCS-8
R914
47k
:CHIP
R915
47k
:CHIP
R917
100k
:CHIP
R918
220k
:CHIP
R916
4.7k
:CHIP
C902
1
Q903
2SB709A
SIRCS-9
R919
2.2k
:CHIP
C933
10
C934
10
1 SIRCS OUT
2 E
3 STBY 14V
4 RMCN
5 STBY 5V
CN901
5P
WHT-L
:S-MICRO
TO M BOARD
CN163
B-SS4743<U/C>-Z..

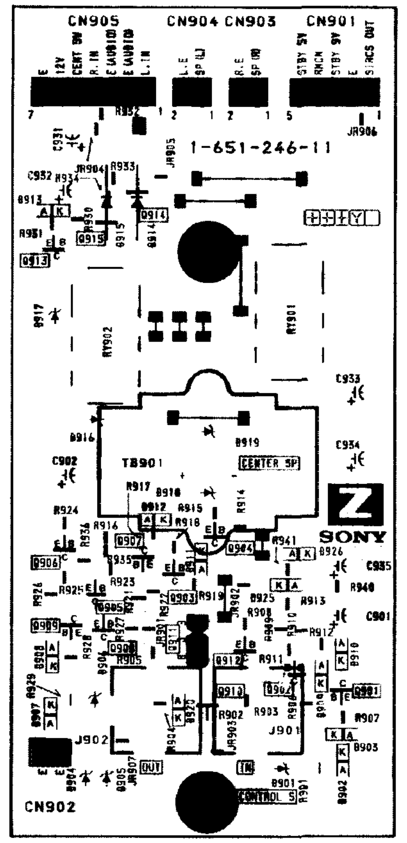

1
2
3
A
B
L
(LUMIPON)
R1902
100
:CHIP
1 LUMIPON
2 STBY 5V
3 E
STBY 5V
R1901
3.3M
:CHIP
C1902
0.1
:CHIP
IC1903
IS455J
LUMIPON
CN1903
3P
WHT-L
:S-MICRO
TO H BOARD
CN156
B-SS4743<U/C>-L..

C [R. G. B. OUT] Z [SIRCS IN/OUT] L [LUMIPON]

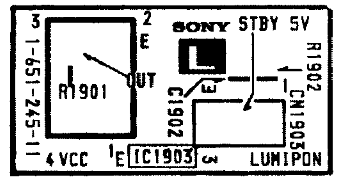
– C BOARD – (KV-32V15 only) 〈Conductor Side〉


SONY
C
1-646-720-22
170656822
CN704
CN701
CN702
CN703
CV1
CV2
CV3
CV4
SCREEN
RV702
R789
R731
C709
C710
C711
C713
C752
L704
L705
1000V
200V

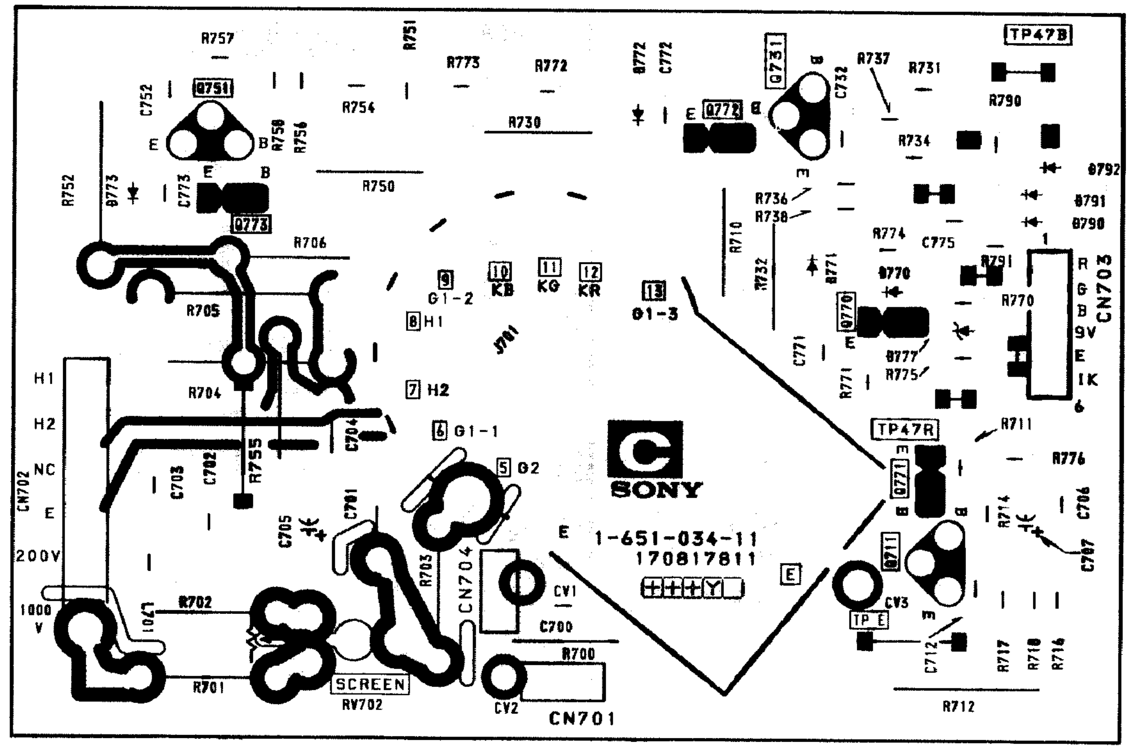
– Z BOARD – 〈Conductor Side〉 **(KV-27V15/32V15 only)**


CN905
CN904
CN903
CN901
1-651-246-11
TB901
J902
CN902
Z
SONY

– L BOARD – 〈Conductor Side〉


1-651-245-11
R1901
R1902
C1902
CN1903
IC1903
4 VCC
E
OUT
SONY
STBY 5V
LUMIPON
L

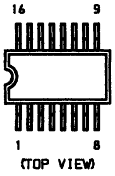
– C BOARD – (KV-27V10/27V15/29V10C/29V10M only) 〈Conductor Side〉


TP47B
TP47R
TP E
R757
R751
R773
R772
R731
R737
R790
R752
R754
R730
R750
R706
R705
R704
R755
R702
R701
R703
R700
R712
R711
R710
R734
R738
R774
R770
R776
C752
C775
C771
C707
C700
CN703
CN702
CN704
CN701
SCREEN
RV702
CV1
CV2
CV3
H1
H2
NC
E
200V
1000V
G1-1
G1-2
G1-3
KB
KG
KR
SONY
C
1-651-034-11
170817811
R
G
B
9V
IK

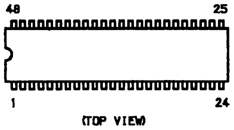
Schematic diagrams
← L Z boards

6-5. SEMICONDUCTORS

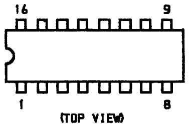
BU4053BF
CXA1315M


16
9
1
8
(TOP VIEW)

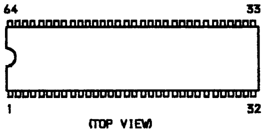
CXA1213BS
CXA1465AS
CXA1545AS


48
25
1
24
(TOP VIEW)

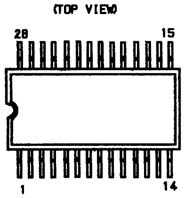
CXA1526P
MB40176PF-G-BND-EF


16
9
1
8
(TOP VIEW)

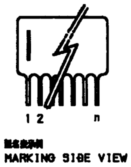
CXP80424-SV4782
CXP80424-SV4789
CXP85228-SV4745


64
33
1
32
(TOP VIEW)

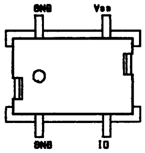
CXP80424-077S


(TOP VIEW)
28
15
1
14

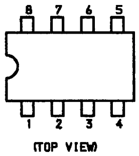
DM-48
PM-38
PM-39


1 2
n
MARKING SIDE VIEW

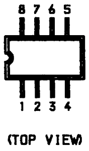
IS4555


GND
Vcc
GND
10

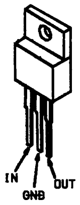
LM358P
ST24C02AB1
ST24C01B1
µPC358C
µPC393C
24C02A1/P


8 7 6 5
1 2 3 4
(TOP VIEW)

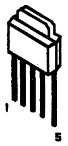
LM358PS
MM1114XFF
MM1118XFF


8 7 6 5
1 2 3 4
(TOP VIEW)

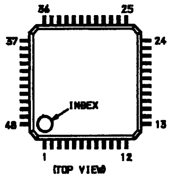
LM7805CT
LM7812CT
MC7809CT
NJM78M09FA
NJM7812FA



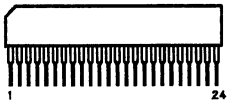
L78LR05D-MA



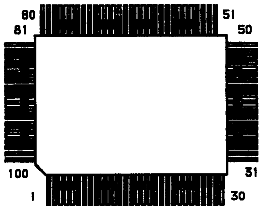
MB3512PFQ-G-BND-EF


36
25
37
24
INDEX
48
13
1
12
(TOP VIEW)

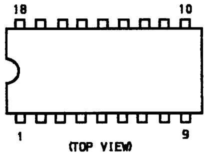
MB81461B-12RS-PSZ



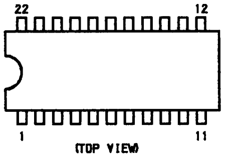
MB86144BPF-G-BND


80
51
81
50
100
31
1
30

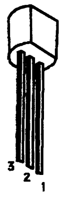
MC144143P1


18
10
1
9
(TOP VIEW)

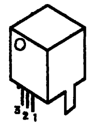
M52470AP
M52470P


22
12
1
11
(TOP VIEW)

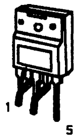
NJM78L05A



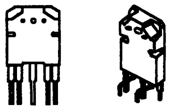
SBX1618-H9
SBX1618-51



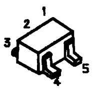
SI-3120C



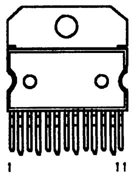
STR81159A



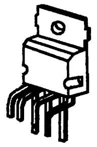
TC7SU04F



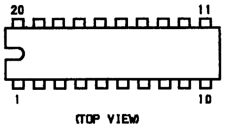
TDA2009A
TDA7262



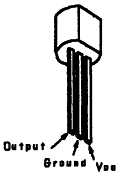
TDA8172



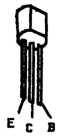
TDA8424


20
11
1
10
(TOP VIEW)

µPC78L05J


Output
Ground
Vcc

2SA1091-O
2SA1091-R
2SC2551-O



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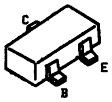
2SB709A
2SD601A



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2SA1309A
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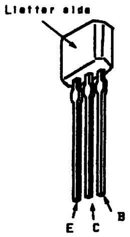
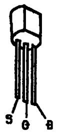
2SC3311A


Lletter side
E
C
B

2SA1306A-Y



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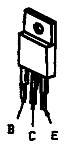
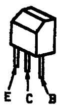
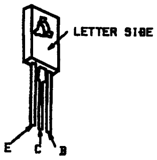
2SC3298A-Y
2SC4159-E
2SC4793
2SD2012
2SD2061



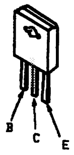
2SB733
2SB734
2SC3733
2SD774



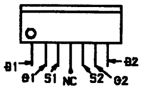
2SC2611
2SC2688-LK
2SC3271F-N


LETTER SIDE
E
C
B

2SC4834MNP



2SC4927-01
2SC4927-02


G1
G1
S1
NC
S2
G2
G2

D1NS4
D1N20R
ERA82-004TP
ERA83-006
ERA85-009
RD10ESB
RD10ESB1
RD10ESB2
RD12ESB3
RD13ESB2
RD3.3ESB2
RD3.9ESB2
RD33ESB1
RD39ESB4
RD5.1ESB
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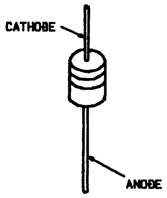
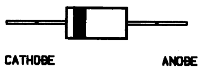
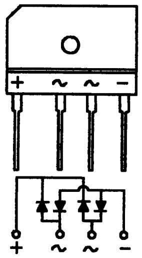
RD6.2ESB2
RD8.2ESB3
RD9.1ESB1
RD9.1ESL
1SS119


CATHODE
ANODE

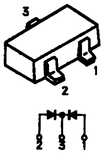
D2S4MF
D2S4MTA1


CATHODE
ANODE

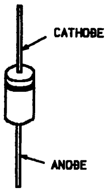
D4SB60L



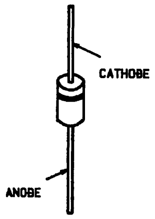
D5SC4M



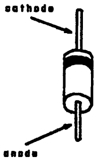
EGP20G
EL1Z
GP08D
RGP02-17EL-6433
RGP10GPKG3
RGP10GPKG23
1SS83


CATHODE
ANODE

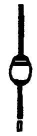
ERA81-004
ERA83-006
ERC06-15S
S2L20UF
S3V10SS


CATHODE
ANODE

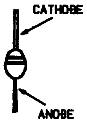
ERD29-08J


cathode
anode

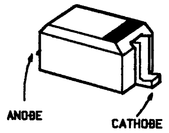
ES1F-LF-G2



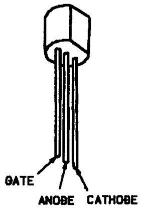
GP08DPKG3


CATHODE
ANODE

HVU359TRF
MA110
1T33


ANODE
CATHODE

SHOR3D42


GATE
ANODE
CATHODE

SECTION 7
EXPLODED VIEWS

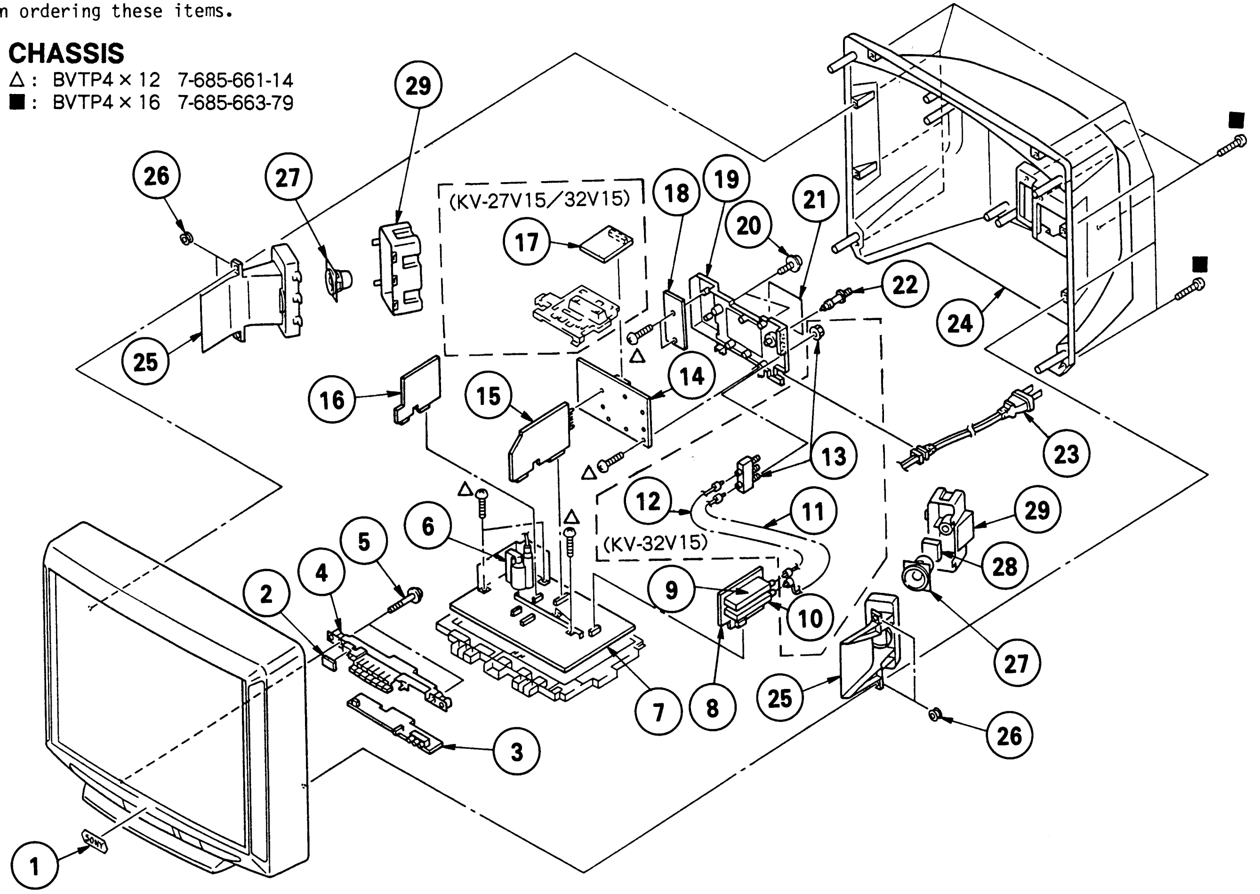
NOTE:
- Items with no part number and no description are not stocked because they are seldom required for routine service.
- The construction parts of an assembled part are indicated with a collation number in the remark column.
- Items marked " ✱ " are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.

The components identified by shading and mark ⚠ are critical for safety.
Replace only with part number specified.

Les composants identifies par une trame et une marque ⚠ sont critiques pour la securite.
Ne les remplacer que par une piece portant le numero specifie.

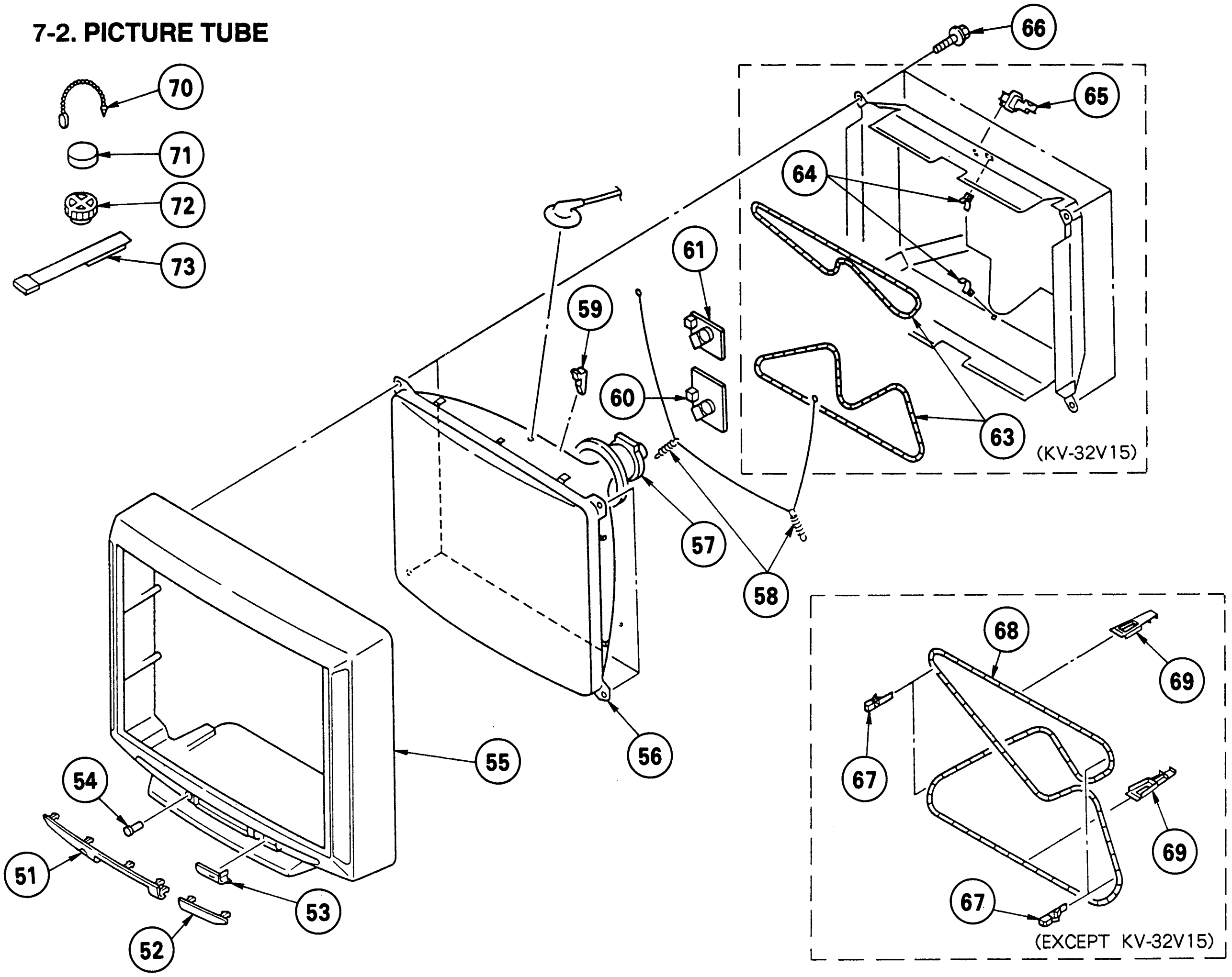
7-1. CHASSIS

△ : BVTP4 × 12 7-685-661-14
■ : BVTP4 × 16 7-685-663-79



REF.NO.	PART NO.	DESCRIPTION	REMARK
1	4-394-048-01	EMBLEM (NO.9), SONY	
2	✱1-651-245-11	L BOARD	
3	✱1-646-717-11	H BOARD	
4	4-043-580-01	BUTTON, MULTI	
5	4-319-520-11	SCREW, SPECIAL (+PW4X30)	
6	⚠1-453-416-11	TRANSFORMER ASSY, FLYBACK (NX-2604A3)	
7	✱A-1346-192-A	D BOARD, COMPLETE (KV-27V10/29V10M)	
	✱A-1346-199-A	D BOARD, COMPLETE (KV-29V10C)	
	✱A-1346-200-A	D BOARD, COMPLETE (KV-27V15)	
	✱A-1346-201-A	D BOARD, COMPLETE (KV-32V15)	
8	✱A-1297-221-A	A BOARD, COMPLETE (KV-27V10/27V15/29V10C/29V10M)	
	✱A-1297-233-A	A BOARD, COMPLETE (KV-32V15)	
9	⚠8-598-254-00	TUNER BTF-WA402	
10	⚠8-598-047-00	TUNER (KV-32V15)	
11	✱1-751-136-11	CABLE, PIN (KV-32V15)	
12	✱1-751-135-11	CABLE, PIN (KV-32V15)	
13	1-417-178-11	SELECTOR, ANTENNA (AS-2) (KV-32V15)	
14	✱A-1394-527-A	UA BOARD, COMPLETE (KV-27V15)	
	✱A-1394-529-A	UA BOARD, COMPLETE (KV-32V15)	
	✱A-1394-552-A	UA BOARD, COMPLETE (KV-27V10/29V10C/29V10M)	
15	✱A-1306-454-A	M BOARD, COMPLETE (KV-27V10/27V15/32V15)	
	✱A-1306-462-A	M BOARD, COMPLETE (KV-29V10C/29V10M)	
16	✱A-1341-622-A	E BOARD, COMPLETE (KV-32V15)	
17	✱A-1195-062-A	P BOARD, COMPLETE (KV-27V15/32V15)	
18	A-1390-411-A	Z BOARD, COMPLETE (KV-27V15/32V15)	
19	4-039-517-11	PANEL, ANTENNA TERMINAL (KV-32V15)	
	4-039-524-21	PANEL, ANTENNA TERMINAL (KV-27V15)	
	4-039-524-31	PANEL, ANTENNA TERMINAL (KV-27V10/29V10C/29V10M)	
20	4-382-854-11	SCREW (M3X10), P, SW (+)	
21	4-039-834-01	LABEL, TERMINAL	
22	1-573-657-11	PLAUG, F-PIN (KV-27V10/27V15/29V10C/29V10M)	
23	⚠1-751-056-11	CORD, POWER (WITH CONNECTOR) 6A/250V (KV-29V10C)	
	⚠1-751-059-11	CORD, POWER (WITH CONNECTOR) 10A/125V (KV-27V10/27V15/29V10M/32V15)	
24	4-043-579-01	COVER, REAR (KV-32V15)	
	4-043-661-01	COVER, REAR (KV-27V10/27V15/29V10C/29V10M)	
25	4-043-457-01	BAFFLE, SPEAKER	
26	4-374-745-11	CUSHION (A)	
27	1-504-524-11	SPEAKER (8CM)	
29	4-043-458-01	COVER, SPEAKER	

7-2. PICTURE TUBE



The components identified by shading and mark ⚠ are critical for safety.
Replace only with part number specified.

Les composants identifies par une trame et une marque ⚠ sont critiques pour la securite.
Ne les remplacer que par une piece portant le numero specifie.

REF.NO.	PART NO.	DESCRIPTION	REMARK
51	4-043-659-01	PANEL (LEFT), CONTROL	
52	4-043-658-01	PANEL (RIGHT), CONTROL	
53	4-043-433-01	DOOR, CONTROL (KV-27V10/27V15/29V10C/29V10M)	
	4-043-433-21	DOOR, CONTROL (KV-32V15)	
54	*4-389-517-01	GUIDE (R), LIGHT	
55	4-043-578-01	CABINET (WITH BEZEL) (KV-32V15)	
	4-043-660-01	CABINET (WITH BEZEL) (KV-27V10/27V15/29V10C/29V10M)	
56	⚠8-733-723-05	PICTURE TUBE (A80JYV50X) (KV-32V15)	
	⚠8-733-848-05	PICTURE TUBE (A68KZJ50X) (KV-27V10/27V15/29V10C/29V10M)	
57	⚠8-451-275-42	DEFLECTION YOKE Y28PFA(VTM) (KV-27V10/27V15/29V10C/29V10M)	
	⚠8-451-315-41	DEFLECTION YOKE Y34FXA(VTM) (KV-32V15)	
58	4-036-329-01	SPRING (B), TENSION	
59	4-041-361-01	SPACER, DEFLECTION YOKE	
60	*A-1331-351-A	C BOARD, COMPLETE (KV-32V15)	
61	*A-1331-327-A	C BOARD, COMPLETE (KV-27V10/27V15/29V10C/29V10M)	
63	⚠1-402-952-12	COIL, DEMAGNETIZATION (KV-32V15)	
64	*4-371-629-01	STOPPER, WIRE (KV-32V15)	
65	4-033-681-01	HOLDER, LEAD (KV-32V15)	
66	4-041-268-01	SCREW (7), TAPPING	
67	4-040-388-01	HOLDER(S), DGC (KV-27V10/27V15/29V10C/29V10M)	
68	⚠1-406-726-22	COIL, DEMAGNETIZATION (KV-27V10/27V15/29V10M)	
	⚠1-406-726-41	COIL, DEMAGNETIZATION(KV-29V10C)	
69	4-040-387-01	HOLDER(M), DGC (KV-27V10/27V15/29V10C/29V10M)	
70	4-308-870-00	CLIP, LEAD WIRE	
71	1-452-032-00	MAGNET, DISK; 10MM ϕ	
72	1-452-094-00	MAGNET, ROTATABLE DISK; 15MM ϕ	
73	X-4306-312-0	PERMALLOY ASSY, CONVERGENCE	

SECTION 8
ELECTRICAL PARTS LIST

P (KV-27V15/32V15)

NOTE:

The components identified by shading and mark ⚠ are critical for safety.
Replace only with part number specified.

Les composants identifies par une trame et une marque ⚠ sont critiques pour la securite.
Ne les remplacer que par une piece portant le numero specifie.

- Items marked "✱" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- All variable and adjustable resistors have characteristic curve B, unless otherwise noted.

RESISTORS
- All resistors are in ohms
- F : nonflammable

When indicating parts by reference number, please include the board name.

CAPACITORS
- MF : μF, PF : μμF

COILS
- MMH : mH, UH : μH

- The components identified by ⧓ in this manual have been carefully factory-selected for each set in order to satisfy regulations regarding X-ray radiation. Should replacement be required, replace only with the value originally used.

REF.NO.	PART NO.	DESCRIPTION			REMARK
	*A-1195-062-A	P BOARD, COMPLETE (KV-27V15/32V15) *****************			
		<CAPACITOR>			
C3201	1-124-477-11	ELECT	47MF	20%	16V
C3203	1-164-004-11	CERAMIC CHIP	0.1MF	10%	25V
C3204	1-124-907-11	ELECT	10MF	20%	50V
C3205	1-124-907-11	ELECT	10MF	20%	50V
C3206	1-124-907-11	ELECT	10MF	20%	50V
C3207	1-163-117-00	CERAMIC CHIP	100PF	5%	50V
C3208	1-163-117-00	CERAMIC CHIP	100PF	5%	50V
C3209	1-126-962-11	ELECT	3.3MF	20%	50V
C3210	1-124-477-11	ELECT	47MF	20%	16V
C3212	1-126-962-11	ELECT	3.3MF	20%	50V
C3213	1-164-346-11	CERAMIC CHIP	1MF		16V
C3214	1-164-346-11	CERAMIC CHIP	1MF		16V
C3215	1-164-346-11	CERAMIC CHIP	1MF		16V
C3216	1-164-005-11	CERAMIC CHIP	0.47MF		25V
C3217	1-164-346-11	CERAMIC CHIP	1MF		16V
C3218	1-164-346-11	CERAMIC CHIP	1MF		16V
C3219	1-126-103-11	ELECT	470MF	20%	16V
C3220	1-164-346-11	CERAMIC CHIP	1MF		16V
C3221	1-164-346-11	CERAMIC CHIP	1MF		16V
C3222	1-164-336-11	CERAMIC CHIP	0.33MF		25V
C3223	1-164-336-11	CERAMIC CHIP	0.33MF		25V
C3224	1-164-222-11	CERAMIC CHIP	0.22MF		25V
C3225	1-164-222-11	CERAMIC CHIP	0.22MF		25V
C3226	1-164-005-11	CERAMIC CHIP	0.47MF		25V
C3227	1-164-346-11	CERAMIC CHIP	1MF		16V
C3228	1-163-117-00	CERAMIC CHIP	100PF	5%	50V
C3229	1-163-093-00	CERAMIC CHIP	10PF	5%	50V
C3230	1-163-141-00	CERAMIC CHIP	0.001MF	5%	50V
C3231	1-163-125-00	CERAMIC CHIP	220PF	5%	50V
C3232	1-163-117-00	CERAMIC CHIP	100PF	5%	50V
C3233	1-164-232-11	CERAMIC CHIP	0.01MF	10%	50V
C3234	1-164-232-11	CERAMIC CHIP	0.01MF	10%	50V
C3235	1-164-232-11	CERAMIC CHIP	0.01MF	10%	50V
C3236	1-164-232-11	CERAMIC CHIP	0.01MF	10%	50V
C3237	1-164-232-11	CERAMIC CHIP	0.01MF	10%	50V
C3238	1-163-101-00	CERAMIC CHIP	22PF	5%	50V
C3239	1-163-141-00	CERAMIC CHIP	0.001MF	5%	50V
C3240	1-163-101-00	CERAMIC CHIP	22PF	5%	50V
C3241	1-163-103-00	CERAMIC CHIP	27PF	5%	50V
C3242	1-164-232-11	CERAMIC CHIP	0.01MF	10%	50V
C3243	1-163-117-00	CERAMIC CHIP	100PF	5%	50V
C3244	1-163-113-00	CERAMIC CHIP	68PF	5%	50V
C3245	1-164-232-11	CERAMIC CHIP	0.01MF	10%	50V
C3246	1-164-232-11	CERAMIC CHIP	0.01MF	10%	50V
C3247	1-163-033-00	CERAMIC CHIP	0.022MF		50V
C3248	1-163-125-00	CERAMIC CHIP	220PF	5%	50V
C3249	1-163-117-00	CERAMIC CHIP	100PF	5%	50V
C3250	1-163-113-00	CERAMIC CHIP	68PF	5%	50V
C3251	1-164-232-11	CERAMIC CHIP	0.01MF	10%	50V
C3252	1-163-103-00	CERAMIC CHIP	27PF	5%	50V
C3253	1-163-101-00	CERAMIC CHIP	22PF	5%	50V
C3254	1-163-141-00	CERAMIC CHIP	0.001MF	5%	50V
C3255	1-163-101-00	CERAMIC CHIP	22PF	5%	50V
C3256	1-164-232-11	CERAMIC CHIP	0.01MF	10%	50V
C3257	1-163-117-00	CERAMIC CHIP	100PF	5%	50V
C3258	1-163-113-00	CERAMIC CHIP	68PF	5%	50V
C3259	1-163-111-00	CERAMIC CHIP	56PF	5%	50V
C3260	1-163-119-00	CERAMIC CHIP	120PF	5%	50V
C3261	1-163-141-00	CERAMIC CHIP	0.001MF	5%	50V
C3263	1-163-141-00	CERAMIC CHIP	0.001MF	5%	50V
C3264	1-165-319-11	CERAMIC CHIP	0.1MF		50V
C3265	1-163-141-00	CERAMIC CHIP	0.001MF	5%	50V
C3266	1-163-141-00	CERAMIC CHIP	0.001MF	5%	50V
C3267	1-163-141-00	CERAMIC CHIP	0.001MF	5%	50V
C3268	1-163-141-00	CERAMIC CHIP	0.001MF	5%	50V
C3269	1-163-141-00	CERAMIC CHIP	0.001MF	5%	50V
C3270	1-165-319-11	CERAMIC CHIP	0.1MF		50V
C3271	1-165-319-11	CERAMIC CHIP	0.1MF		50V
C3272	1-165-319-11	CERAMIC CHIP	0.1MF		50V
C3273	1-163-109-00	CERAMIC CHIP	47PF	5%	50V
C3274	1-163-101-00	CERAMIC CHIP	22PF	5%	50V
C3275	1-163-101-00	CERAMIC CHIP	22PF	5%	50V
C3276	1-163-111-00	CERAMIC CHIP	56PF	5%	50V
C3277	1-163-101-00	CERAMIC CHIP	22PF	5%	50V
C3278	1-163-101-00	CERAMIC CHIP	22PF	5%	50V
C3279	1-163-141-00	CERAMIC CHIP	0.001MF	5%	50V
C3280	1-124-907-11	ELECT	10MF	20%	50V
C3282	1-164-346-11	CERAMIC CHIP	1MF		16V
		<CONNECTOR>			
CN150	1-573-297-21	CONNECTOR, BOARD TO BOARD 18P			
		<DIODE>			
D3202	8-719-031-68	DIODE HVU359TRF			
D3203	8-719-404-46	DIODE MA110			
D3208	8-719-110-17	DIODE RD10ESB2			
D3209	8-719-110-17	DIODE RD10ESB2			
		<IC>			
IC3200	8-759-971-56	IC MB81461B-12RS-PSZ			
IC3201	8-759-093-29	IC MB86144BPF-G-BND			
IC3202	8-759-093-28	IC MB40176PF-G-BND-EF			
IC3203	8-759-093-28	IC MB40176PF-G-BND-EF			
IC3204	8-759-093-26	IC MB3512PFQ-G-BND-EF			

REF.NO.	PART NO.	DESCRIPTION	REMARK
IC3205	8-759-243-19	IC TC7SU04F	

<COIL>

REF.NO.	PART NO.	DESCRIPTION	REMARK
L3201	1-410-470-11	INDUCTOR 10UH	
L3202	1-408-424-00	INDUCTOR 180UH	
L3203	1-408-424-00	INDUCTOR 180UH	
L3204	1-410-476-11	INDUCTOR 33UH	
L3205	1-410-470-11	INDUCTOR 10UH	
L3206	1-410-387-11	INDUCTOR 33UH	
L3207	1-410-387-11	INDUCTOR 33UH	
L3208	1-410-387-11	INDUCTOR 33UH	
L3209	1-410-387-11	INDUCTOR 33UH	

<TRANSISTOR>

REF.NO.	PART NO.	DESCRIPTION	REMARK
Q3201	8-729-216-22	TRANSISTOR 2SA1162-G	
Q3202	8-729-422-27	TRANSISTOR 2SD601A-Q	
Q3203	8-729-216-22	TRANSISTOR 2SA1162-G	
Q3204	8-729-216-22	TRANSISTOR 2SA1162-G	
Q3206	8-729-422-27	TRANSISTOR 2SD601A-Q	
Q3207	8-729-216-22	TRANSISTOR 2SA1162-G	
Q3208	8-729-422-27	TRANSISTOR 2SD601A-Q	
Q3209	8-729-216-22	TRANSISTOR 2SA1162-G	
Q3210	8-729-216-22	TRANSISTOR 2SA1162-G	

<RESISTOR>

REF.NO.	PART NO.	DESCRIPTION	REMARK
R3201	1-216-097-00	METAL GLAZE 100K 5% 1/10W	
R3202	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
R3203	1-216-025-00	METAL GLAZE 100 5% 1/10W	
R3204	1-216-025-00	METAL GLAZE 100 5% 1/10W	
R3205	1-216-121-00	METAL GLAZE 1M 5% 1/10W	
R3207	1-216-295-00	METAL GLAZE 0 5% 1/10W	
R3208	1-216-097-00	METAL GLAZE 100K 5% 1/10W	
R3209	1-216-079-00	METAL GLAZE 18K 5% 1/10W	
R3210	1-216-089-91	METAL GLAZE 47K 5% 1/10W	
R3211	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
R3212	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
R3213	1-216-075-00	METAL GLAZE 12K 5% 1/10W	
R3214	1-216-121-00	METAL GLAZE 1M 5% 1/10W	
R3215	1-216-057-00	METAL GLAZE 2.2K 5% 1/10W	
R3216	1-216-057-00	METAL GLAZE 2.2K 5% 1/10W	
R3217	1-216-057-00	METAL GLAZE 2.2K 5% 1/10W	
R3218	1-216-049-00	METAL GLAZE 1K 5% 1/10W	
R3219	1-216-049-00	METAL GLAZE 1K 5% 1/10W	
R3220	1-216-049-00	METAL GLAZE 1K 5% 1/10W	
R3221	1-216-655-11	METAL CHIP 1.5K 0.50% 1/10W	
R3222	1-216-655-11	METAL CHIP 1.5K 0.50% 1/10W	
R3223	1-216-025-00	METAL GLAZE 100 5% 1/10W	
R3224	1-216-049-00	METAL GLAZE 1K 5% 1/10W	
R3225	1-216-025-00	METAL GLAZE 100 5% 1/10W	
R3226	1-216-085-00	METAL GLAZE 33K 5% 1/10W	
R3227	1-216-647-11	METAL CHIP 680 0.50% 1/10W	
R3228	1-216-045-00	METAL GLAZE 680 5% 1/10W	
R3229	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
R3230	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
R3231	1-216-001-00	METAL GLAZE 10 5% 1/10W	
R3232	1-216-083-00	METAL GLAZE 27K 5% 1/10W	
R3233	1-216-049-00	METAL GLAZE 1K 5% 1/10W	
R3234	1-216-651-11	METAL CHIP 1K 0.50% 1/10W	
R3235	1-216-043-00	METAL GLAZE 560 5% 1/10W	
R3236	1-216-065-00	METAL GLAZE 4.7K 5% 1/10W	
R3237	1-216-043-00	METAL GLAZE 560 5% 1/10W	
R3238	1-216-049-00	METAL GLAZE 1K 5% 1/10W	
R3239	1-216-043-00	METAL GLAZE 560 5% 1/10W	
R3241	1-216-057-00	METAL GLAZE 2.2K 5% 1/10W	
R3242	1-216-049-00	METAL GLAZE 1K 5% 1/10W	
R3243	1-216-025-00	METAL GLAZE 100 5% 1/10W	
R3244	1-216-025-00	METAL GLAZE 100 5% 1/10W	
R3245	1-216-025-00	METAL GLAZE 100 5% 1/10W	
R3246	1-216-069-00	METAL GLAZE 6.8K 5% 1/10W	
R3247	1-216-063-00	METAL GLAZE 3.9K 5% 1/10W	
R3248	1-216-295-00	METAL GLAZE 0 5% 1/10W	
R3249	1-216-057-00	METAL GLAZE 2.2K 5% 1/10W	
R3250	1-216-043-00	METAL GLAZE 560 5% 1/10W	
R3251	1-216-049-00	METAL GLAZE 1K 5% 1/10W	
R3252	1-216-043-00	METAL GLAZE 560 5% 1/10W	
R3253	1-216-065-00	METAL GLAZE 4.7K 5% 1/10W	
R3254	1-216-043-00	METAL GLAZE 560 5% 1/10W	
R3255	1-216-041-00	METAL GLAZE 470 5% 1/10W	
R3256	1-216-043-00	METAL GLAZE 560 5% 1/10W	
R3259	1-216-298-00	METAL GLAZE 2.2 5% 1/10W	
R3260	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
R3263	1-216-025-00	METAL GLAZE 100 5% 1/10W	
R3264	1-216-025-00	METAL GLAZE 100 5% 1/10W	
R3265	1-216-049-00	METAL GLAZE 1K 5% 1/10W	
R3266	1-216-057-00	METAL GLAZE 2.2K 5% 1/10W	
R3267	1-216-055-00	METAL GLAZE 1.8K 5% 1/10W	
R3268	1-216-053-00	METAL GLAZE 1.5K 5% 1/10W	
R3269	1-216-057-00	METAL GLAZE 2.2K 5% 1/10W	
R3270	1-216-657-11	METAL CHIP 1.8K 0.50% 1/10W	
R3271	1-216-655-11	METAL CHIP 1.5K 0.50% 1/10W	
R3273	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
R3274	1-216-049-00	METAL GLAZE 1K 5% 1/10W	
R3275	1-216-049-00	METAL GLAZE 1K 5% 1/10W	
R3276	1-216-049-00	METAL GLAZE 1K 5% 1/10W	
R3277	1-216-298-00	METAL GLAZE 2.2 5% 1/10W	

<CRYSTAL>

REF.NO.	PART NO.	DESCRIPTION	REMARK
X3201	1-567-878-11	VIBRATOR, CRYSTAL	
X3202	1-567-878-11	VIBRATOR, CRYSTAL	

****

*A-1297-221-A A.BOARD, COMPLETE
****
(KV-27V10/27V15/29V10C/29V10M)
*A-1297-233-A A BOARD, COMPLETE (KV-32V15)
****

<CAPACITOR>

REF.NO.	PART NO.	DESCRIPTION	REMARK
C173	1-164-232-11	CERAMIC CHIP 0.01MF 10% 50V	
C174	1-164-232-11	CERAMIC CHIP 0.01MF 10% 50V	
C175	1-126-935-11	ELECT 470MF 20% 16V	
C176	1-126-935-11	ELECT 470MF 20% 16V	
C177	1-126-964-11	ELECT 10MF 20% 50V	
C178	1-126-933-11	ELECT 100MF 20% 16V	
C179	1-124-916-11	ELECT 22MF 20% 25V	
C180	1-124-916-11	ELECT 22MF 20% 25V	(KV-32V15)
C181	1-164-161-11	CERAMIC CHIP 0.0022MF 10% 50V	
C182	1-164-161-11	CERAMIC CHIP 0.0022MF 10% 50V	(KV-32V15)
C184	1-126-964-11	ELECT 10MF 20% 50V	(KV-32V15)
C185	1-126-964-11	ELECT 10MF 20% 50V	(KV-32V15)

A **M**

Les composants identifies par une trame et une marque ⚠ sont critiques pour la securite. Ne les remplacer que par une piece portant le numero specifie.

The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

REF.NO.	PART NO.	DESCRIPTION	REMARK
		<CONNECTOR>	
CN103	*1-564-519-11	PLUG, CONNECTOR 4P	
CN151	1-573-979-21	CONNECTOR, BOARD TO BOARD 11P	
CN152	1-750-394-11	PIN, CONNECTOR (STAKING) 32P	
CN164	1-564-505-11	PLUG, CONNECTOR 2P	
CN165	1-564-505-11	PLUG, CONNECTOR 2P	
CN208	1-564-510-11	PLUG, CONNECTOR 7P	(KV-27V10/27V15/29V10C/29V10M)
		<DIODE>	
D170	8-719-110-76	DIODE RD33ESB1	
D175	8-719-110-76	DIODE RD33ESB1	(KV-32V15)
		<IC>	
IC172	8-759-932-67	IC BU4053BF	
		<COIL>	
L170	1-408-408-00	INDUCTOR 8.2UH	
L171	1-408-408-00	INDUCTOR 8.2UH	
L172	1-408-408-00	INDUCTOR 8.2UH	
L173	1-408-408-00	INDUCTOR 8.2UH	(KV-32V15)
		<TRANSISTOR>	
Q172	8-729-216-22	TRANSISTOR 2SA1162-G	(KV-32V15)
Q173	8-729-216-22	TRANSISTOR 2SA1162-G	(KV-32V15)
		<RESISTOR>	
R170	1-216-025-00	METAL GLAZE 100 5% 1/10W	(KV-27V10/27V15/29V10C/29V10M)
R173	1-216-295-00	METAL GLAZE 0 5% 1/10W	(KV-32V15)
R174	1-216-689-11	METAL GLAZE 39K 5% 1/10W	
R175	1-215-900-11	METAL OXIDE 22K 5% 2W F	(KV-32V15)
R176	1-216-295-00	METAL GLAZE 0 5% 1/10W	(KV-27V10/27V15/29V10C/29V10M)
R177	1-215-900-11	METAL OXIDE 22K 5% 2W F	
R179	1-216-065-00	METAL GLAZE 4.7K 5% 1/10W	
R181	1-216-025-00	METAL GLAZE 100 5% 1/10W	(KV-32V15)
R185	1-216-025-00	METAL GLAZE 100 5% 1/10W	(KV-32V15)
R187	1-216-083-00	METAL GLAZE 27K 5% 1/10W	
R188	1-216-689-11	METAL GLAZE 39K 5% 1/10W	(KV-32V15)
R189	1-216-083-00	METAL GLAZE 27K 5% 1/10W	(KV-32V15)
R190	1-216-065-00	METAL GLAZE 4.7K 5% 1/10W	(KV-32V15)
R191	1-216-065-00	METAL GLAZE 4.7K 5% 1/10W	(KV-32V15)
R193	1-216-037-00	METAL GLAZE 330 5% 1/10W	(KV-32V15)
R196	1-216-037-00	METAL GLAZE 330 5% 1/10W	(KV-32V15)

REF.NO.	PART NO.	DESCRIPTION	REMARK
		<TUNER>	
TU101⚠	8-598-254-00	TUNER BTF-WA402	
TU102⚠	8-598-047-00	TUNER	(KV-32V15)

****

*A-1306-454-A M BOARD, COMPLETE (KV-27V10/27V15/32V15)
****
*A-1306-462-A M BOARD, COMPLETE (KV-29V10C/29V10M)
****

REF.NO.	PART NO.	DESCRIPTION	REMARK
		<CAPACITOR>	
C002	1-163-809-11	CERAMIC CHIP 0.047MF 10% 25V	
C003	1-163-001-11	CERAMIC CHIP 220PF 10% 50V	
C005	1-163-001-11	CERAMIC CHIP 220PF 10% 50V	
C006	1-163-001-11	CERAMIC CHIP 220PF 10% 50V	
C007	1-124-903-11	ELECT 1MF 20% 50V	
C008	1-163-001-11	CERAMIC CHIP 220PF 10% 50V	
C009	1-163-001-11	CERAMIC CHIP 220PF 10% 50V	
C010	1-163-001-11	CERAMIC CHIP 220PF 10% 50V	
C012	1-163-001-11	CERAMIC CHIP 220PF 10% 50V	
C013	1-163-001-11	CERAMIC CHIP 220PF 10% 50V	
C014	1-163-001-11	CERAMIC CHIP 220PF 10% 50V	
C015	1-163-001-11	CERAMIC CHIP 220PF 10% 50V	
C016	1-163-001-11	CERAMIC CHIP 220PF 10% 50V	
C017	1-163-001-11	CERAMIC CHIP 220PF 10% 50V	
C018	1-163-001-11	CERAMIC CHIP 220PF 10% 50V	
C019	1-163-001-11	CERAMIC CHIP 220PF 10% 50V	
C021	1-163-001-11	CERAMIC CHIP 220PF 10% 50V	
C022	1-163-001-11	CERAMIC CHIP 220PF 10% 50V	
C023	1-163-001-11	CERAMIC CHIP 220PF 10% 50V	
C025	1-163-001-11	CERAMIC CHIP 220PF 10% 50V	
C028	1-163-001-11	CERAMIC CHIP 220PF 10% 50V	
C029	1-163-001-11	CERAMIC CHIP 220PF 10% 50V	
C032	1-124-902-00	ELECT 0.47MF 20% 50V	
C033	1-126-933-11	ELECT 100MF 20% 10V	
C034	1-163-001-11	CERAMIC CHIP 220PF 10% 50V	(KV-27V10/27V15/32V15)
C035	1-163-001-11	CERAMIC CHIP 220PF 10% 50V	(KV-27V10/27V15/32V15)
C041	1-163-009-11	CERAMIC CHIP 0.001MF 10% 50V	
C043	1-163-159-00	CERAMIC CHIP 12PF 2% 50V	
C045	1-126-940-11	ELECT 330MF 20% 16V	
C047	1-104-896-11	CERAMIC CHIP 24PF 2% 50V	
C048	1-126-964-11	ELECT 10MF 20% 50V	
C049	1-163-001-11	CERAMIC CHIP 220PF 10% 50V	
C050	1-163-001-11	CERAMIC CHIP 220PF 10% 50V	
C051	1-163-031-11	CERAMIC CHIP 0.01MF 50V	
C052	1-163-001-11	CERAMIC CHIP 220PF 10% 50V	
C053	1-163-121-00	CERAMIC CHIP 150PF 5% 50V	
C054	1-163-125-00	CERAMIC CHIP 220PF 5% 50V	
C055	1-163-001-11	CERAMIC CHIP 220PF 10% 50V	
C056	1-163-001-11	CERAMIC CHIP 220PF 10% 50V	
C057	1-163-017-00	CERAMIC CHIP 0.0047MF 10% 50V	
C058	1-163-037-11	CERAMIC CHIP 0.022MF 10% 25V	
C059	1-163-001-11	CERAMIC CHIP 220PF 10% 50V	
C060	1-124-903-11	ELECT 1MF 20% 50V	
C062	1-126-964-11	ELECT 10MF 20% 50V	
C150	1-136-165-00	FILM 0.1MF 5% 50V	(KV-27V10/27V15/32V15)

REF.NO.	PART NO.	DESCRIPTION				REMARK
C151	1-136-175-00	FILM	0.068MF	5%	50V	(KV-27V10/27V15/32V15)
C152	1-126-964-11	ELECT	10MF	20%	50V	(KV-27V10/27V15/32V15)
C153	1-137-367-11	FILM	0.0033MF	5%	50V	(KV-27V10/27V15/32V15)
C154	1-163-038-00	CERAMIC CHIP	0.1MF		25V	(KV-27V10/27V15/32V15)
C155	1-126-964-11	ELECT	10MF	20%	50V	(KV-27V10/27V15/32V15)
C156	1-163-135-00	CERAMIC CHIP	560PF	5%	50V	(KV-27V10/27V15/32V15)
C157	1-163-038-00	CERAMIC CHIP	0.1MF		25V	(KV-27V10/27V15/32V15)
C158	1-124-903-11	ELECT	1MF	20%	50V	(KV-27V10/27V15/32V15)
C160	1-124-903-11	ELECT	1MF	20%	50V	
C201	1-163-017-00	CERAMIC CHIP	0.0047MF	10%	50V	
C202	1-163-001-11	CERAMIC CHIP	220PF	10%	50V	
C203	1-163-989-11	CERAMIC CHIP	0.033MF	10%	25V	
C204	1-126-933-11	ELECT	100MF	20%	16V	
C205	1-163-001-11	CERAMIC CHIP	220PF	10%	50V	
C211	1-163-989-11	CERAMIC CHIP	0.033MF	10%	25V	
C212	1-124-902-00	ELECT	0.47MF	20%	50V	
C213	1-124-902-00	ELECT	0.47MF	20%	50V	
C214	1-163-017-00	CERAMIC CHIP	0.0047MF	10%	50V	
C216	1-104-665-11	ELECT	100MF	20%	25V	
C301	1-163-117-00	CERAMIC CHIP	100PF	5%	50V	
C305	1-126-964-11	ELECT	10MF	20%	50V	
C306	1-124-902-00	ELECT	0.47MF	20%	50V	
C307	1-163-125-00	CERAMIC CHIP	220PF	5%	50V	
C308	1-163-099-00	CERAMIC CHIP	18PF	5%	50V	
C310	1-124-916-11	ELECT	22MF	20%	25V	
C311	1-124-903-11	ELECT	1MF	20%	50V	
C313	1-163-003-11	CERAMIC CHIP	330PF	10%	50V	
C315	1-126-964-11	ELECT	10MF	20%	50V	(KV-27V10/27V15/32V15)
C316	1-126-964-11	ELECT	10MF	20%	50V	(KV-27V10/27V15/32V15)
C317	1-126-964-11	ELECT	10MF	20%	50V	(KV-27V10/27V15/32V15)
C318	1-136-165-00	FILM	0.1MF	5%	50V	
C319	1-136-165-00	FILM	0.1MF	5%	50V	
C320	1-136-165-00	FILM	0.1MF	5%	50V	
C321	1-126-952-11	ELECT	1000MF	20%	16V	
C322	1-136-153-00	FILM	0.01MF	5%	50V	
C323	1-126-923-11	ELECT	220MF	20%	10V	
C324	1-163-003-11	CERAMIC CHIP	330PF	10%	50V	
C325	1-163-037-11	CERAMIC CHIP	0.022MF	10%	25V	
C326	1-136-169-00	FILM	0.22MF	5%	50V	
C327	1-136-169-00	FILM	0.22MF	5%	50V	
C328	1-124-902-00	ELECT	0.47MF	20%	50V	
C329	1-124-903-11	ELECT	1MF	20%	50V	
C330	1-126-964-11	ELECT	10MF	20%	50V	
C332	1-164-489-11	CERAMIC CHIP	0.22MF	10%	16V	
C333	1-163-011-11	CERAMIC CHIP	0.0015MF	10%	50V	
C334	1-124-902-00	ELECT	0.47MF	20%	50V	
C335	1-163-001-11	CERAMIC CHIP	220PF	10%	50V	
C336	1-124-903-11	ELECT	1MF	20%	50V	
C337	1-124-902-00	ELECT	0.47MF	20%	50V	
C338	1-136-153-00	FILM	0.01MF	5%	50V	
C340	1-124-903-11	ELECT	1MF	20%	50V	
C341	1-163-005-11	CERAMIC CHIP	470PF	10%	50V	
C342	1-137-414-11	FILM	0.0047MF	10%	100V	

<CONNECTOR>

REF.NO.	PART NO.	DESCRIPTION	REMARK
CN129	*1-564-521-11	PLUG, CONNECTOR 6P	
CN130	1-573-301-21	CONNECTOR, BOARD TO BOARD 20P	
CN131	*1-691-914-11	CONNECTOR, BOARD TO BOARD 15P	
CN134	*1-564-521-11	PLUG, CONNECTOR 6P	(KV-27V10/27V15/32V15)
CN137	1-750-394-11	PIN, CONNECTOR (STAKING) 32P	
CN138	*1-564-512-11	PLUG, CONNECTOR 9P	
CN163	*1-564-508-11	PLUG, CONNECTOR 5P	(KV-27V10/27V15/32V15)
CN168	1-564-505-11	PLUG, CONNECTOR 2P	

<DIODE>

REF.NO.	PART NO.	DESCRIPTION	REMARK
D001	8-719-404-46	DIODE MA110	
D002	8-719-404-46	DIODE MA110	
D004	8-719-404-46	DIODE MA110	(KV-27V10/27V15/32V15)
D005	8-713-300-57	DIODE 1T33	
D006	8-719-110-17	DIODE RD10ESB2	
D007	8-719-110-17	DIODE RD10ESB2	
D008	8-719-110-17	DIODE RD10ESB2	
D009	8-719-110-17	DIODE RD10ESB2	
D150	8-719-404-46	DIODE MA110	(KV-27V10/27V15/32V15)
D201	8-719-404-46	DIODE MA110	
D202	8-719-404-46	DIODE MA110	
D205	8-719-110-17	DIODE RD10ESB2	
D206	8-719-110-17	DIODE RD10ESB2	
D207	8-719-510-48	DIODE D1N20R	(KV-27V10/27V15/32V15)
D301	8-719-110-17	DIODE RD10ESB2	
D304	8-719-110-17	DIODE RD10ESB2	

<IC>

REF.NO.	PART NO.	DESCRIPTION	REMARK
IC101	8-752-851-01	IC CXP80424-079S	
IC102	8-759-168-37	IC ST24C01B1	
IC103	8-759-805-37	IC L78LR05D-MA	
IC150	8-759-084-28	IC MC144143P1	(KV-27V10/27V15/32V15)
IC201	8-759-090-21	IC TDA8424	
IC202	8-759-983-69	IC LM358PS	
IC301	8-752-059-67	IC CXA1465AS	

<COIL>

REF.NO.	PART NO.	DESCRIPTION		REMARK
L001	1-410-470-11	INDUCTOR	10UH	
L002	1-408-414-00	INDUCTOR	27UH	
L150	1-410-470-11	INDUCTOR	10UH	(KV-27V10/27V15/32V15)

<TRANSISTOR>

REF.NO.	PART NO.	DESCRIPTION	REMARK
Q001	8-729-216-22	TRANSISTOR 2SA1162-G	
Q004	8-729-216-22	TRANSISTOR 2SA1162-G	
Q005	8-729-422-27	TRANSISTOR 2SD601A-Q	
Q151	8-729-422-27	TRANSISTOR 2SD601A-Q	(KV-27V10/27V15/32V15)
Q201	8-729-422-27	TRANSISTOR 2SD601A-Q	
Q301	8-729-216-22	TRANSISTOR 2SA1162-G	
Q302	8-729-216-22	TRANSISTOR 2SA1162-G	
Q308	8-729-422-27	TRANSISTOR 2SD601A-Q	

<RESISTOR>

REF.NO.	PART NO.	DESCRIPTION	REMARK
JR200	1-216-295-00	METAL GLAZE 0 5% 1/10W	
JR201	1-216-295-00	METAL GLAZE 0 5% 1/10W	
JR202	1-216-295-00	METAL GLAZE 0 5% 1/10W	
R002	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
R003	1-216-033-00	METAL GLAZE 220 5% 1/10W	
R004	1-216-033-00	METAL GLAZE 220 5% 1/10W	
R005	1-216-033-00	METAL GLAZE 220 5% 1/10W	
R006	1-216-049-00	METAL GLAZE 1K 5% 1/10W	
R007	1-216-033-00	METAL GLAZE 220 5% 1/10W	
R008	1-216-033-00	METAL GLAZE 220 5% 1/10W	
R009	1-216-033-00	METAL GLAZE 220 5% 1/10W	
R011	1-216-033-00	METAL GLAZE 220 5% 1/10W	
R012	1-216-033-00	METAL GLAZE 220 5% 1/10W	
R013	1-216-033-00	METAL GLAZE 220 5% 1/10W	
R016	1-216-033-00	METAL GLAZE 220 5% 1/10W	
R017	1-216-033-00	METAL GLAZE 220 5% 1/10W	
R018	1-216-033-00	METAL GLAZE 220 5% 1/10W	
R019	1-216-033-00	METAL GLAZE 220 5% 1/10W	
R020	1-216-033-00	METAL GLAZE 220 5% 1/10W	
R021	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
R022	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
R023	1-216-033-00	METAL GLAZE 220 5% 1/10W	
R025	1-216-033-00	METAL GLAZE 220 5% 1/10W	
R026	1-216-097-00	METAL GLAZE 100K 5% 1/10W	
R027	1-216-121-00	METAL GLAZE 1M 5% 1/10W	
R028	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
R029	1-216-065-00	METAL GLAZE 4.7K 5% 1/10W	
R030	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
R031	1-216-033-00	METAL GLAZE 220 5% 1/10W	
R032	1-216-033-00	METAL GLAZE 220 5% 1/10W	
R033	1-216-033-00	METAL GLAZE 220 5% 1/10W	
R034	1-216-033-00	METAL GLAZE 220 5% 1/10W	
R035	1-216-033-00	METAL GLAZE 220 5% 1/10W	
R036	1-216-033-00	METAL GLAZE 220 5% 1/10W	
R037	1-216-033-00	METAL GLAZE 220 5% 1/10W	
R038	1-216-033-00	METAL GLAZE 220 5% 1/10W	
R039	1-216-295-00	METAL GLAZE 0 5% 1/10W	
R040	1-216-049-00	METAL GLAZE 1K 5% 1/10W	
R041	1-216-033-00	METAL GLAZE 220 5% 1/10W	
R042	1-216-049-00	METAL GLAZE 1K 5% 1/10W	
R043	1-216-049-00	METAL GLAZE 1K 5% 1/10W	
R044	1-216-065-00	METAL GLAZE 4.7K 5% 1/10W	
R045	1-216-065-00	METAL GLAZE 4.7K 5% 1/10W	
R046	1-216-065-00	METAL GLAZE 4.7K 5% 1/10W	
R048	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
R049	1-216-049-00	METAL GLAZE 1K 5% 1/10W	
R050	1-216-049-00	METAL GLAZE 1K 5% 1/10W	
R051	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
R052	1-216-065-00	METAL GLAZE 4.7K 5% 1/10W	
R053	1-216-049-00	METAL GLAZE 1K 5% 1/10W	
R054	1-216-049-00	METAL GLAZE 1K 5% 1/10W	
R055	1-216-033-00	METAL GLAZE 220 5% 1/10W	(KV-27V10/27V15/32V15)
R056	1-216-065-00	METAL GLAZE 4.7K 5% 1/10W	
R057	1-216-065-00	METAL GLAZE 4.7K 5% 1/10W	
R058	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
R059	1-216-065-00	METAL GLAZE 4.7K 5% 1/10W	
R060	1-216-079-00	METAL GLAZE 18K 5% 1/10W	(KV-27V10/27V15/32V15)
	1-216-295-00	METAL GLAZE 0 5% 1/10W	(KV-29V10C/29V10M)
R062	1-216-057-00	METAL GLAZE 2.2K 5% 1/10W	
R063	1-216-033-00	METAL GLAZE 220 5% 1/10W	(KV-27V10/27V15/32V15)
R064	1-216-065-00	METAL GLAZE 4.7K 5% 1/10W	
R065	1-216-065-00	METAL GLAZE 4.7K 5% 1/10W	
R066	1-216-025-00	METAL GLAZE 100 5% 1/10W	
R067	1-216-025-00	METAL GLAZE 100 5% 1/10W	
R069	1-216-033-00	METAL GLAZE 220 5% 1/10W	(KV-27V10/27V15/32V15)
R070	1-216-049-00	METAL GLAZE 1K 5% 1/10W	(KV-27V10/27V15/32V15)
R071	1-216-049-00	METAL GLAZE 1K 5% 1/10W	
R074	1-216-295-00	METAL GLAZE 0 5% 1/10W	
R075	1-216-295-00	METAL GLAZE 0 5% 1/10W	
R076	1-216-295-00	METAL GLAZE 0 5% 1/10W	
R078	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
R079	1-216-295-00	METAL GLAZE 0 5% 1/10W	
R080	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
R082	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
R083	1-216-089-91	METAL GLAZE 47K 5% 1/10W	
R086	1-216-089-91	METAL GLAZE 47K 5% 1/10W	
R087	1-216-049-00	METAL GLAZE 1K 5% 1/10W	
R091	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
R092	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
R093	1-216-097-00	METAL GLAZE 100K 5% 1/10W	
R150	1-216-097-00	METAL GLAZE 100K 5% 1/10W	(KV-27V10/27V15/32V15)
R151	1-216-049-00	METAL GLAZE 1K 5% 1/10W	(KV-27V10/27V15/32V15)
R152	1-216-049-00	METAL GLAZE 1K 5% 1/10W	(KV-27V10/27V15/32V15)
R153	1-216-069-00	METAL GLAZE 6.8K 5% 1/10W	(KV-27V10/27V15/32V15)
R154	1-216-041-00	METAL GLAZE 470 5% 1/10W	(KV-27V10/27V15/32V15)
R155	1-216-049-00	METAL GLAZE 1K 5% 1/10W	(KV-27V10/27V15/32V15)
R156	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
R157	1-216-073-00	METAL GLAZE 10K 5% 1/10W	(KV-27V10/27V15/32V15)
R158	1-216-073-00	METAL GLAZE 10K 5% 1/10W	(KV-27V10/27V15/32V15)
R159	1-216-049-00	METAL GLAZE 1K 5% 1/10W	(KV-27V10/27V15/32V15)
R160	1-216-049-00	METAL GLAZE 1K 5% 1/10W	(KV-27V10/27V15/32V15)
R161	1-216-049-00	METAL GLAZE 1K 5% 1/10W	(KV-27V10/27V15/32V15)
R162	1-216-065-00	METAL GLAZE 4.7K 5% 1/10W	(KV-27V10/27V15/32V15)
R163	1-216-065-00	METAL GLAZE 4.7K 5% 1/10W	(KV-27V10/27V15/32V15)
R164	1-216-065-00	METAL GLAZE 4.7K 5% 1/10W	(KV-27V10/27V15/32V15)
R165	1-216-065-00	METAL GLAZE 4.7K 5% 1/10W	(KV-27V10/27V15/32V15)
R166	1-216-049-00	METAL GLAZE 1K 5% 1/10W	(KV-27V10/27V15/32V15)
R168	1-216-049-00	METAL GLAZE 1K 5% 1/10W	(KV-27V10/27V15/32V15)
R201	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
R202	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
R203	1-216-089-91	METAL GLAZE 47K 5% 1/10W	
R204	1-216-089-91	METAL GLAZE 47K 5% 1/10W	
R205	1-216-295-00	METAL GLAZE 0 5% 1/10W	

REF.NO.	PART NO.	DESCRIPTION				REMARK
R206	1-216-295-00	METAL GLAZE	0	5%	1/10W	
R207	1-216-085-00	METAL GLAZE	33K	5%	1/10W	
R208	1-216-089-91	METAL GLAZE	47K	5%	1/10W	
R209	1-216-085-00	METAL GLAZE	33K	5%	1/10W	
R210	1-216-089-91	METAL GLAZE	47K	5%	1/10W	
R211	1-216-033-00	METAL GLAZE	220	5%	1/10W	
R212	1-216-025-00	METAL GLAZE	100	5%	1/10W	
R213	1-216-025-00	METAL GLAZE	100	5%	1/10W	
R218	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R219	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R220	1-216-033-00	METAL GLAZE	220	5%	1/10W	
R222	1-216-089-91	METAL GLAZE	47K	5%	1/10W	
R223	1-216-045-00	METAL GLAZE	680	5%	1/10W	
R301	1-216-025-00	METAL GLAZE	100	5%	1/10W	
R302	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R303	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R304	1-216-039-00	METAL GLAZE	390	5%	1/10W	
R305	1-216-039-00	METAL GLAZE	390	5%	1/10W	
R306	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R312	1-216-119-00	METAL GLAZE	820K	5%	1/10W	
R313	1-216-079-00	METAL GLAZE	18K	5%	1/10W	
R321	1-216-025-00	METAL GLAZE	100	5%	1/10W	
R323	1-216-041-00	METAL GLAZE	470	5%	1/10W	
R324	1-216-025-00	METAL GLAZE	100	5%	1/10W	
R327	1-216-653-11	METAL CHIP	1.2K	0.50%	1/10W	
R328	1-216-033-00	METAL GLAZE	220	5%	1/10W	
R329	1-216-033-00	METAL GLAZE	220	5%	1/10W	
R330	1-216-295-00	METAL GLAZE	0	5%	1/10W	
R331	1-216-678-11	METAL CHIP	13K	0.50%	1/10W	
R332	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R333	1-216-025-00	METAL GLAZE	100	5%	1/10W	
R334	1-216-687-11	METAL CHIP	33K	0.50%	1/10W	
R335	1-216-121-00	METAL GLAZE	1M	5%	1/10W	
R336	1-216-295-00	METAL GLAZE	0	5%	1/10W	
R337	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R338	1-249-417-11	CARBON	1K	5%	1/4W	F
R339	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R340	1-216-077-00	METAL GLAZE	15K	5%	1/10W	
R341	1-216-085-00	METAL GLAZE	33K	5%	1/10W	
R342	1-216-295-00	METAL GLAZE	0	5%	1/10W	
R343	1-216-053-00	METAL GLAZE	1.5K	5%	1/10W	
R344	1-216-043-00	METAL GLAZE	560	5%	1/10W	
R345	1-216-109-00	METAL GLAZE	330K	5%	1/10W	
R346	1-216-071-00	METAL GLAZE	8.2K	5%	1/10W	
R347	1-249-409-11	CARBON	220	5%	1/4W	F
R348	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R349	1-216-089-91	METAL GLAZE	47K	5%	1/10W	
R351	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R352	1-216-089-91	METAL GLAZE	47K	5%	1/10W	
R354	1-216-033-00	METAL GLAZE	220	5%	1/10W	
R356	1-216-295-00	METAL GLAZE	0	5%	1/10W	
R374	1-216-033-00	METAL GLAZE	220	5%	1/10W	
R375	1-216-033-00	METAL GLAZE	220	5%	1/10W	

<CRYSTAL>

REF.NO.	PART NO.	DESCRIPTION
X001	1-579-917-21	VIBRATOR, CRYSTAL
X301	1-567-505-11	OSCILLATOR, CRYSTAL

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REF.NO.	PART NO.	DESCRIPTION	REMARK
	*A-1331-327-A	C BOARD, COMPLETE ***************** (KV-27V10/27V15/29V10C/29V10M)	
	*A-1331-351-A	C BOARD, COMPLETE (KV-32V15) *****************	

<CAPACITOR>

REF.NO.	PART NO.	DESCRIPTION				REMARK
C700	1-102-074-00	CERAMIC	0.001MF	10%	50V	
C701	1-162-114-00	CERAMIC	0.0047MF		2KV	
C702	1-106-375-12	MYLAR	0.022MF		200V	
C703	1-106-375-12	MYLAR	0.022MF		200V	
C704	1-162-116-00	CERAMIC	680PF	10%	2KV	
C705	1-123-946-00	ELECT	4.7MF	20%	250V	
C706	1-124-916-11	ELECT	22MF	20%	25V	(KV-27V10/27V15/29V10C/29V10M)
	1-126-933-11	ELECT	100MF	20%	16V	(KV-32V15)
C707	1-102-129-00	CERAMIC	0.01MF	10%	50V	(KV-32V15)
C711	1-164-083-11	CERAMIC	680PF	10%	50V	(KV-32V15)
C712	1-164-081-11	CERAMIC	470PF	10%	50V	
C731	1-164-083-11	CERAMIC	680PF	10%	50V	(KV-32V15)
C732	1-164-081-11	CERAMIC	470PF	10%	50V	
C751	1-164-083-11	CERAMIC	680PF	10%	50V	(KV-32V15)
C752	1-164-081-11	CERAMIC	470PF	10%	50V	(KV-27V10/27V15/29V10C/29V10M)
	1-164-083-11	CERAMIC	680PF	10%	50V	(KV-32V15)

<CONNECTOR>

REF.NO.	PART NO.	DESCRIPTION
CN701	1-695-915-11	TAB (CONTACT)
CN702	1-508-768-00	PIN, CONNECTOR (5MM PITCH) 6P
CN703	*1-564-509-11	PLUG, CONNECTOR 6P

<DIODE>

REF.NO.	PART NO.	DESCRIPTION
D711	8-719-911-19	DIODE 1SS119 (KV-32V15)
D712	8-719-911-19	DIODE 1SS119 (KV-32V15)
D731	8-719-911-19	DIODE 1SS119 (KV-32V15)
D732	8-719-911-19	DIODE 1SS119 (KV-32V15)
D751	8-719-911-19	DIODE 1SS119 (KV-32V15)
D752	8-719-911-19	DIODE 1SS119 (KV-32V15)
D770	8-719-911-19	DIODE 1SS119
D771	8-719-911-19	DIODE 1SS119
D772	8-719-911-19	DIODE 1SS119
D773	8-719-911-19	DIODE 1SS119
D777	8-719-109-72	DIODE RD3.9ESB2
D790	8-719-911-19	DIODE 1SS119
D791	8-719-911-19	DIODE 1SS119
D792	8-719-911-19	DIODE 1SS119

<JACK>

REF.NO.	PART NO.	DESCRIPTION
J701	⚠1-540-124-11	SOCKET, PICTURE TUBE

<COIL>

REF.NO.	PART NO.	DESCRIPTION	
L701	1-410-478-11	INDUCTOR	47UH

C | E (KV-32V15)

REF.NO.	PART NO.	DESCRIPTION	REMARK
		<TRANSISTOR>	
Q711	8-729-326-11	TRANSISTOR 2SC2611	
Q712	8-729-119-78	TRANSISTOR 2SC2785-HFE	(KV-32V15)
Q731	8-729-326-11	TRANSISTOR 2SC2611	
Q732	8-729-119-78	TRANSISTOR 2SC2785-HFE	(KV-32V15)
Q751	8-729-326-11	TRANSISTOR 2SC2611	
Q752	8-729-119-78	TRANSISTOR 2SC2785-HFE	(KV-32V15)
Q770	8-729-119-76	TRANSISTOR 2SA1175-HFE	
Q771	8-729-200-17	TRANSISTOR 2SA1091-O	
Q772	8-729-200-17	TRANSISTOR 2SA1091-O	
Q773	8-729-200-17	TRANSISTOR 2SA1091-O	
		<RESISTOR>	
R700	1-247-739-11	CARBON 100 5% 1/2W	
R701	1-244-941-00	CARBON 680K 5% 1/2W	
R702	1-249-496-11	CARBON 100K 5% 1/2W	
R703	1-249-496-11	CARBON 100K 5% 1/2W	
R704	1-216-398-11	METAL OXIDE 5.6 5% 3W	F
R705	1-216-398-11	METAL OXIDE 5.6 5% 3W	F
R707	1-249-496-11	CARBON 100K 5% 1/2W	(KV-32V15)
R710	1-247-758-11	CARBON 3.3K 5% 1/2W	
R711	1-247-807-31	CARBON 100 5% 1/4W	
R712	1-215-924-71	METAL OXIDE 15K 5% 3W	F
R714	1-249-425-11	CARBON 4.7K 5% 1/4W	
R716	1-249-411-11	CARBON 330 5% 1/4W	(KV-27V10/27V15/29V10C/29V10M)
	1-249-417-11	CARBON 1K 5% 1/4W	(KV-32V15)
R717	1-249-393-11	CARBON 10 5% 1/4W	
R718	1-249-413-11	CARBON 470 5% 1/4W	(KV-32V15)
R730	1-247-758-11	CARBON 3.3K 5% 1/2W	
R731	1-247-807-31	CARBON 100 5% 1/4W	
R732	1-215-924-71	METAL OXIDE 15K 5% 3W	F
R734	1-249-425-11	CARBON 4.7K 5% 1/4W	
R736	1-249-411-11	CARBON 330 5% 1/4W	
R737	1-249-393-11	CARBON 10 5% 1/4W	
R750	1-247-758-31	CARBON 3.3K 5% 1/2W	
R751	1-247-807-31	CARBON 100 5% 1/4W	
R752	1-215-924-71	METAL OXIDE 15K 5% 3W	F
R754	1-249-425-11	CARBON 4.7K 5% 1/4W	
R755	1-247-758-11	CARBON 3.3K 5% 1/2W	(KV-27V10/27V15/29V10C/29V10M)
R756	1-249-411-11	CARBON 330 5% 1/4W	(KV-32V15)
	1-249-413-11	CARBON 470 5% 1/4W	(KV-27V10/27V15/29V10C/29V10M)
R757	1-249-393-11	CARBON 10 5% 1/4W	
R758	1-249-417-11	CARBON 1K 5% 1/4W	F (KV-27V10/27V15/29V10C/29V10M)
R770	1-249-433-11	CARBON 22K 5% 1/4W	
R771	1-249-409-11	CARBON 220 5% 1/4W	F
R772	1-249-409-11	CARBON 220 5% 1/4W	F
R773	1-249-409-11	CARBON 220 5% 1/4W	F
R774	1-249-437-11	CARBON 47K 5% 1/4W	
R775	1-249-417-11	CARBON 1K 5% 1/4W	F
R776	1-249-409-11	CARBON 220 5% 1/4W	F
R790	1-249-413-11	CARBON 470 5% 1/4W	
R791	1-249-412-11	CARBON 390 5% 1/4W	
		<VARIABLE RESISTOR>	
RV702	1-230-641-11	RES, ADJ, METAL GLAZE 2.2M	

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REF.NO.	PART NO.	DESCRIPTION	REMARK
	*A-1341-622-A	E BOARD, COMPLETE (KV-32V15) *****************	
	4-382-854-11	SCREW (M3X10), P, SW (+)	
		<CAPACITOR>	
C1501	1-126-103-11	ELECT 470MF 20% 16V	
C1502	1-137-372-11	FILM 0.022MF 5% 50V	
C1503	1-102-234-00	CERAMIC 270PF 10% 500V	
C1504	1-136-165-00	FILM 0.1MF 5% 50V	
C1505	1-124-907-11	ELECT 10MF 20% 50V	
C1507	1-124-907-11	ELECT 10MF 20% 50V	
C1509	1-136-165-00	FILM 0.1MF 5% 50V	
C1510	1-137-370-11	FILM 0.01MF 5% 50V	
C1516	1-136-165-00	FILM 0.1MF 5% 50V	
C1519	1-136-104-00	FILM 0.16MF 5% 200V	
C1522	1-124-360-00	ELECT 1000MF 20% 16V	
C1523	1-136-177-00	FILM 1MF 5% 50V	
C1524	1-124-927-11	ELECT 4.7MF 20% 50V	
C1529	1-124-907-11	ELECT 10MF 20% 50V	
C1530	1-124-907-11	ELECT 10MF 20% 50V	
C1532	1-124-927-11	ELECT 4.7MF 20% 50V	
C1533	1-126-233-11	ELECT 22MF 20% 25V	
C1542	1-124-477-11	ELECT 47MF 20% 16V	
C1550	1-136-756-11	FILM 0.24MF 5% 200V	
		<CONNECTOR>	
CN122	1-573-299-21	CONNECTOR, BOARD TO BOARD 10P	
CN123	1-573-299-21	CONNECTOR, BOARD TO BOARD 10P	
DY-2	1-508-765-00	PIN, CONNECTOR (5MM PITCH) 3P	
		<DIODE>	
D1501	8-719-911-19	DIODE 1SS119	
D1502	8-719-801-35	THYRISTOR SHOR3D42	
D1503	8-719-980-78	DIODE ERA83-006	
D1504	8-719-302-43	DIODE EL1Z	
D1505	8-719-911-19	DIODE 1SS119	
D1506	8-719-911-19	DIODE 1SS119	
D1507	8-719-911-19	DIODE 1SS119	
D1508	8-719-110-17	DIODE RD10ESB2	
D1509	8-719-110-17	DIODE RD10ESB2	
D1510	8-719-911-19	DIODE 1SS119	
D1513	8-719-302-43	DIODE EL1Z	
D1515	8-719-911-19	DIODE 1SS119	
D1516	8-719-987-87	DIODE ERA85-009	
D1517	8-719-911-19	DIODE 1SS119	

The components identified by shading and mark ⚠ are critical for safety.
Replace only with part number specified.

Les composants identifies par une trame et une marque ⚠ sont critiques pour la securite.
Ne les remplacer que par une piece portant le numero specifie.

<IC>

REF.NO.	PART NO.	DESCRIPTION	REMARK
IC1501	8-752-052-88	IC CXA1526P	
IC1502	8-759-701-59	IC NJM78M09FA	
IC1504	8-759-135-80	IC UPC358C	

<COIL>

REF.NO.	PART NO.	DESCRIPTION	REMARK
L1502	1-459-592-11	COIL (WITH CORE) (PMC)	
L1504	1-459-474-11	COIL (WITH CORE)	

<TRANSISTOR>

REF.NO.	PART NO.	DESCRIPTION	REMARK
Q1501	8-729-119-78	TRANSISTOR 2SC2785-HFE	
Q1502	8-729-140-96	TRANSISTOR 2SD774-34	
Q1503	8-729-119-76	TRANSISTOR 2SA1175-HFE	
Q1506	8-729-119-78	TRANSISTOR 2SC2785-HFE	
Q1507	8-729-119-78	TRANSISTOR 2SC2785-HFE	
Q1508	8-729-140-93	TRANSISTOR 2SB733-34	
Q1509	8-729-140-93	TRANSISTOR 2SB733-34	
Q1511	8-729-119-76	TRANSISTOR 2SA1175-HFE	
Q1514	8-729-209-15	TRANSISTOR 2SD2012	
Q1519	8-729-119-78	TRANSISTOR 2SC2785-HFE	
Q1520	8-729-119-78	TRANSISTOR 2SC2785-HFE	

<RESISTOR>

REF.NO.	PART NO.	DESCRIPTION				REMARK
R1501	1-249-409-11	CARBON	220	5%	1/4W	
R1502	1-249-409-11	CARBON	220	5%	1/4W	
R1503	1-249-435-11	CARBON	33K	5%	1/4W	
R1504	1-249-429-11	CARBON	10K	5%	1/4W	
R1505	1-249-421-11	CARBON	2.2K	5%	1/4W	
R1506	1-249-423-11	CARBON	3.3K	5%	1/4W	
R1507	1-249-410-11	CARBON	270	5%	1/4W	
R1508	1-249-437-11	CARBON	47K	5%	1/4W	
R1509	1-249-429-11	CARBON	10K	5%	1/4W	
R1510	1-215-461-00	METAL	47K	1%	1/4W	
R1511	1-216-379-11	METAL OXIDE	6.8	5%	2W	F
R1513	1-249-423-11	CARBON	3.3K	5%	1/4W	
R1514	1-247-885-00	CARBON	180K	5%	1/4W	
R1515	1-215-905-11	METAL OXIDE	10	5%	3W	F
R1519	1-249-417-11	CARBON	1K	5%	1/4W	
R1520	1-249-417-11	CARBON	1K	5%	1/4W	
R1522	1-249-417-11	CARBON	1K	5%	1/4W	
R1527	1-249-417-11	CARBON	1K	5%	1/4W	F
R1528	1-249-438-11	CARBON	56K	5%	1/4W	
R1529	1-249-434-11	CARBON	27K	5%	1/4W	
R1530	1-249-432-11	CARBON	18K	5%	1/4W	
R1533	1-249-427-11	CARBON	6.8K	5%	1/4W	
R1534	1-249-424-11	CARBON	3.9K	5%	1/4W	
R1535	1-249-425-11	CARBON	4.7K	5%	1/4W	
R1536	1-215-857-11	METAL OXIDE	10	5%	1W	F
R1537	1-249-404-00	CARBON	82	5%	1/4W	
R1538	1-216-379-11	METAL OXIDE	6.8	5%	2W	F
R1541	1-249-441-11	CARBON	100K	5%	1/4W	
R1543	1-249-414-11	CARBON	560	5%	1/4W	
R1546	1-215-885-00	METAL OXIDE	68	5%	2W	F
R1552	1-249-426-11	CARBON	5.6K	5%	1/4W	
R1554	1-249-393-11	CARBON	10	5%	1/4W	
R1556	1-249-438-11	CARBON	56K	5%	1/4W	
R1559	1-249-429-11	CARBON	10K	5%	1/4W	
R1564	1-249-435-11	CARBON	33K	5%	1/4W	
R1568	1-247-891-00	CARBON	330K	5%	1/4W	
R1569	1-249-413-11	CARBON	470	5%	1/4W	
R1578	1-249-423-11	CARBON	3.3K	5%	1/4W	
R1582	1-249-411-11	CARBON	330	5%	1/4W	
R1583	1-249-421-11	CARBON	2.2K	5%	1/4W	
R1585	1-249-441-11	CARBON	100K	5%	1/4W	
R1586	1-247-891-00	CARBON	330K	5%	1/4W	

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*A-1346-192-A D BOARD, COMPLETE (KV-27V10/29V10M)
****
*A-1346-199-A D BOARD, COMPLETE (KV-29V10C)
****
*A-1346-200-A D BOARD, COMPLETE (KV-27V15)
****
*A-1346-201-A D BOARD, COMPLETE (KV-32V15)
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4-382-854-11 SCREW (M3X10), P, SW (+)

<CAPACITOR>

REF.NO.	PART NO.	DESCRIPTION				REMARK
C501	1-124-557-11	ELECT	1000MF	20%	25V	
C502	1-162-131-11	CERAMIC	220PF	10%	2KV	
C503	1-124-557-11	ELECT	1000MF	20%	25V	
C504	1-137-366-11	FILM	0.0022MF	5%	50V	
C505	1-124-916-11	ELECT	22MF	20%	25V	
C506	1-128-560-11	ELECT	22MF	20%	100V	
C507	1-123-947-00	ELECT	10MF	20%	160V	
C508	1-129-898-00	FILM	0.0022MF	5%	630V	
			(KV-27V10/27V15/29V10C/29V10M)			
C509	1-124-916-11	ELECT	22MF	20%	25V	
C511	1-123-024-21	ELECT	33MF		160V	
C512	1-102-212-00	CERAMIC	820PF	10%	500V	
C513	1-102-212-00	CERAMIC	820PF	10%	500V	
C514	1-102-244-00	CERAMIC	220PF	10%	500V	
C515	1-137-416-11	FILM	0.01MF	10%	100V	
C517	1-162-116-00	CERAMIC	680PF	10%	2KV	
C518	1-162-116-00	CERAMIC	680PF	10%	2KV	
C519 ⚠	1-104-771-11	FILM	0.02MF	3%	2KV	
C520 ⚠	1-162-134-91	CERAMIC	470PF	10%	2KV	
C521 ⚠	1-136-316-51	FILM	0.056MF	5%	630V	
C522	1-106-383-00	MYLAR	0.047MF	99%	200V	
C523	1-102-002-00	CERAMIC	680PF	10%	500V	
C524	1-102-212-00	CERAMIC	820PF	10%	500V	
C525	1-124-902-00	ELECT	0.47MF	20%	50V	
C526	1-106-395-00	MYLAR	0.15MF	10%	200V	
C527	1-124-341-00	ELECT	1MF	20%	200V	
C528	1-136-113-00	FILM	2MF	5%	200V	
C529	1-137-410-11	FILM	0.001MF	10%	100V	
C530	1-104-844-11	FILM	0.62MF	5%	200V	
C531	1-104-664-11	ELECT	47MF	20%	25V	
C532	1-136-165-00	FILM	0.1MF	5%	50V	
C533	1-124-927-11	ELECT	4.7MF	20%	50V	
C534	1-136-161-00	FILM	0.047MF	5%	50V	
C535	1-126-969-11	ELECT	220MF	20%	50V	
C536	1-137-398-11	FILM	0.068MF	10%	100V	
C537	1-126-964-11	ELECT	10MF	20%	50V	
C538	1-136-161-00	FILM	0.047MF	5%	50V	
C540	1-137-366-11	FILM	0.0022MF	5%	50V	
C541	1-137-366-11	FILM	0.0022MF	5%	50V	
C542	1-130-481-00	FILM	0.0068MF	5%	50V	
C545	1-124-927-11	ELECT	4.7MF	20%	50V	
C547	1-164-079-11	CERAMIC	330PF	10%	50V	
C548 ⚠	1-162-116-91	CERAMIC	680PF	10%	2KV	
C550	1-106-387-00	MYLAR	0.068MF	10%	200V	
C553	1-164-079-11	CERAMIC	330PF	10%	50V	

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REF.NO.	PART NO.	DESCRIPTION			REMARK
C561	1-162-815-11	CERAMIC	47PF	5%	500V
C595	1-123-932-00	ELECT	4.7MF	20%	160V
C598	1-124-342-00	ELECT	3.3MF	20%	160V
C600	1-126-964-11	ELECT	10MF	20%	50V
C601	⚠1-136-311-51	FILM	0.47MF	20%	125V (KV-27V10/27V15/29V10M/32V15)
	⚠1-136-511-61	FILM	0.47MF	20%	300V (KV-29V10C)
C602	⚠1-136-311-51	FILM	0.47MF	20%	125V (KV-27V10/27V15/29V10M/32V15)
C603	⚠1-136-311-51	FILM	0.47MF	20%	125V (KV-27V10/27V15/29V10M/32V15)
C604	⚠1-162-578-81	CERAMIC	0.0047MF	20%	400V
C607	1-125-489-00	ELECT	560MF	20%	250V (KV-29V10C)
	1-125-495-11	ELECT	470MF	20%	200V (KV-27V10/27V15/29V10M/32V15)
C608	1-125-489-00	ELECT	560MF	20%	250V (KV-29V10C)
	1-125-495-11	ELECT	470MF	20%	200V (KV-27V10/27V15/29V10M/32V15)
C609	1-136-169-00	FILM	0.22MF	5%	50V
C610	1-136-169-00	FILM	0.22MF	5%	50V
C611	1-136-169-00	FILM	0.22MF	5%	50V
C612	1-136-169-00	FILM	0.22MF	5%	50V
C613	1-164-625-11	CERAMIC	680PF	10%	500V
C614	1-164-625-11	CERAMIC	680PF	10%	500V
C616	1-126-964-11	ELECT	10MF	20%	50V
C617	1-126-953-11	ELECT	2200MF	20%	35V
C618	1-124-557-11	ELECT	1000MF	20%	25V
C619	1-126-952-11	ELECT	1000MF	20%	16V
C620	1-164-644-11	CERAMIC	330PF	10%	500V
C621	1-126-356-11	ELECT	220MF	20%	160V
C623	1-162-117-00	CERAMIC	100PF	10%	500V
C624	1-136-155-00	FILM	0.015MF	5%	50V
C625	1-129-719-00	FILM	0.027MF	10%	400V
C626	1-104-665-11	ELECT	100MF	20%	25V
C628	1-161-740-00	CERAMIC	470PF	10%	400V (KV-29V10C)
C629	1-108-700-11	MYLAR	470PF	10%	400V (KV-29V10C)
C630	1-136-165-00	FILM	0.1MF	5%	50V (KV-29V10C)
C632	1-126-406-11	ELECT	2.2MF	20%	400V (KV-29V10C)
C633	1-126-933-11	ELECT	100MF	20%	16V (KV-29V10C)
C634	1-165-127-11	CERAMIC	470PF	10%	500V
C635	1-124-126-00	ELECT	47MF	20%	16V
C636	1-137-374-11	FILM	0.047MF	5%	50V
C637	1-124-916-11	ELECT	22MF	20%	25V
C639	1-161-740-00	CERAMIC	470PF	10%	400V (KV-27V10/27V15/29V10M/32V15)
C641	1-126-933-11	ELECT	100MF	20%	10V
C642	1-137-217-11	FILM	0.01MF	5%	0
C643	1-137-218-11	FILM	0.012MF	5%	0
C645	1-102-125-00	CERAMIC	0.0047MF	10%	50V
C646	1-126-933-11	ELECT	100MF	20%	16V
C647	1-124-916-11	ELECT	22MF	20%	25V
C684	1-124-667-11	ELECT	10MF	20%	50V
C695	1-126-964-11	ELECT	10MF	20%	50V
C2205	1-124-925-11	ELECT	2.2MF	20%	50V
C2208	1-124-925-11	ELECT	2.2MF	20%	50V
C2210	1-104-666-11	ELECT	220MF	20%	25V
C2211	1-104-664-11	ELECT	47MF	20%	25V
C2212	1-104-666-11	ELECT	220MF	20%	25V
C2213	1-136-173-00	FILM	0.47MF	5%	50V

REF.NO.	PART NO.	DESCRIPTION			REMARK
C2215	1-136-169-00	FILM	0.22MF	5%	50V
C2216	1-126-941-11	ELECT	470MF	20%	25V
C2217	1-136-169-00	FILM	0.22MF	5%	50V
C2218	1-124-557-11	ELECT	1000MF	20%	25V
C2219	1-124-557-11	ELECT	1000MF	20%	25V
C2220	1-124-925-11	ELECT	2.2MF	20%	50V

<CONNECTOR>

CN104	1-573-979-21	CONNECTOR, BOARD TO BOARD 11P
CN107	*1-580-798-11	CONNECTOR PIN (DEFLECTION YOKE) 6P
CN108	1-573-296-21	CONNECTOR, BOARD TO BOARD 10P(KV-32V15)
CN109	1-573-296-21	CONNECTOR, BOARD TO BOARD 10P(KV-32V15)
CN113	*1-508-765-00	PIN, CONNECTOR (5MM PITCH) 3P
CN114	*1-580-843-11	PIN, CONNECTOR (POWER)
CN115	1-573-298-21	CONNECTOR, BOARD TO BOARD 20P
CN116	*1-691-915-11	CONNECTOR, BOARD TO BOARD 15P
CN117	1-573-978-21	CONNECTOR, BOARD TO BOARD 11P

<DIODE>

D501	8-719-028-71	DIODE ES1F-LF-G2
D502	8-719-979-85	DIODE EGP20G
D503	8-719-979-85	DIODE EGP20G
D504	⚠8-719-302-44	DIODE EL1Z-V1
D505	8-719-302-43	DIODE EL1Z
D506	8-719-945-80	DIODE ERC06-15S
D507	8-719-945-80	DIODE ERC06-15S
D508	8-719-900-26	DIODE ERD29-08J
D509	8-719-302-43	DIODE EL1Z
D510	8-719-936-82	DIODE GP08DPKG3
D511	8-719-936-82	DIODE GP08DPKG3
D512	8-719-109-84	DIODE RD5.1ESB1
D513	8-719-936-82	DIODE GP08DPKG3
D514	8-719-911-19	DIODE 1SS119
D515	8-719-911-19	DIODE 1SS119
D601	8-719-911-19	DIODE 1SS119
D602	⚠8-719-510-63	DIODE D4SB60L-F
D603	8-719-500-69	DIODE S3V10SS
D605	8-719-500-69	DIODE S3V10SS
D607	8-719-510-02	DIODE D1NS4
D608	8-719-510-02	DIODE D1NS4
D609	8-719-510-02	DIODE D1NS4
D610	8-719-510-02	DIODE D1NS4
D611	8-719-510-02	DIODE D1NS4
D612	8-719-031-79	DIODE D5SC4M
D613	8-719-022-97	DIODE D2S4MF
D614	8-719-110-33	DIODE RD12ESB3
D615	8-719-027-43	DIODE S2L20UF
D616	8-719-027-43	DIODE S2L20UF
D617	8-719-027-43	DIODE S2L20UF
D618	8-719-027-43	DIODE S2L20UF
D619	8-719-510-02	DIODE D1NS4
D621	8-719-028-72	DIODE RGP02-17EL-6433 (KV-29V10C)
D622	8-719-911-19	DIODE 1SS119
D623	8-719-911-19	DIODE 1SS119
D624	8-719-911-19	DIODE 1SS119
D626	8-719-510-48	DIODE D1N20R
D627	8-719-510-48	DIODE D1N20R
D628	8-719-911-19	DIODE 1SS119
D633	8-719-110-09	DIODE RD8.2ESB3
D634	8-719-911-19	DIODE 1SS119
D635	8-719-911-19	DIODE 1SS119
D636	8-719-510-48	DIODE D1N20R
D637	8-719-911-19	DIODE 1SS119

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REF.NO.	PART NO.	DESCRIPTION	REMARK
D638	8-719-911-19	DIODE 1SS119	

<FUSE>

REF.NO.	PART NO.	DESCRIPTION	REMARK
F601 ⚠	1-572-506-51	FUSE 6.3A/250V (KV-29V10C)	
⚠	1-576-193-11	FUSE 6.3A/125V (KV-27V10/27V15/29V10M/32V15)	
	1-533-223-11	CLIP, FUSE; F601	

<FERRITE BEAD>

REF.NO.	PART NO.	DESCRIPTION	REMARK
FB501	1-412-911-11	INDUCTOR, FERRITE BEAD	
FB502	1-412-911-11	INDUCTOR, FERRITE BEAD	
FB601	1-412-911-11	INDUCTOR, FERRITE BEAD	
FB602	1-412-911-11	INDUCTOR, FERRITE BEAD	
FB603	1-412-911-11	INDUCTOR, FERRITE BEAD	
FB604	1-412-911-11	INDUCTOR, FERRITE BEAD	
FB605	1-412-911-11	INDUCTOR, FERRITE BEAD	
FB606	1-412-911-11	INDUCTOR, FERRITE BEAD	
FB613	1-412-911-11	INDUCTOR, FERRITE BEAD	
FB614	1-412-911-11	INDUCTOR, FERRITE BEAD	

<IC>

REF.NO.	PART NO.	DESCRIPTION	REMARK
IC501	8-759-980-58	IC TDA8172	
IC504	8-759-103-93	IC UPC393C	
IC601 ⚠	1-810-051-11	POWER MODULE DM-48	
IC603	8-749-923-94	IC STR81159A (KV-29V10C)	
IC604	8-759-924-12	IC LM7805CT	
IC605	8-759-701-79	IC NJM7812FA	
IC606	8-759-701-59	IC NJM78M09FA	
IC610	8-759-708-05	IC NJM78L05A	
IC2200	8-759-980-43	IC TDA2009A	

<COIL>

REF.NO.	PART NO.	DESCRIPTION	REMARK
L502	1-421-465-00	COIL, FERRITE CHOKE 68UH	
L503	1-412-524-11	INDUCTOR 8.2UH	
L504	1-410-669-31	INDUCTOR 33UH	
L505	1-459-104-00	COIL, WITH CORE	
L506	1-422-613-11	COIL, AIR CORE	
L508	1-412-553-11	INDUCTOR 3.3MMH	
L509 ⚠	1-460-173-21	COIL, HORIZONTAL LINEARITY	
L510	1-406-607-11	COIL, CHOKE 15MMH	
L513	1-412-524-11	INDUCTOR 8.2UH	

<MODULE>

REF.NO.	PART NO.	DESCRIPTION	REMARK
PM501 ⚠	1-810-061-11	PROTECTOR MODULE PM-38 (KV-27V10/27V15/29V10C/29V10M)	
PM501 ⚠	1-810-061-21	PROTECTOR MODULE PM-39 (KV-32V15)	

<IC LINK>

REF.NO.	PART NO.	DESCRIPTION	REMARK
PS2201 ⚠	1-532-675-91	LINK, IC 1.5A	

<TRANSISTOR>

REF.NO.	PART NO.	DESCRIPTION	REMARK
Q502	8-729-119-80	TRANSISTOR 2SC2688-LK	
Q503	8-729-809-29	TRANSISTOR 2SC4159-E	
Q505	8-729-119-78	TRANSISTOR 2SC2785-HFE	
Q591	8-729-016-32	TRANSISTOR 2SC4927-01	
Q601	8-729-019-51	TRANSISTOR 2SC4834MNP	
Q602	8-729-019-51	TRANSISTOR 2SC4834MNP	
Q603	8-729-119-76	TRANSISTOR 2SA1175-HFE	
Q604	8-729-119-78	TRANSISTOR 2SC2785-HFE	
Q605	8-729-119-78	TRANSISTOR 2SC2785-HFE	
Q611	8-729-119-78	TRANSISTOR 2SC2785-HFE	
Q613	8-729-924-90	TRANSISTOR 2SB1370-EF	
Q614	8-729-119-78	TRANSISTOR 2SC2785-HFE	
Q2202	8-729-119-78	TRANSISTOR 2SC2785-HFE	
Q2203	8-729-119-76	TRANSISTOR 2SA1175-HFE	

- The components identified by ⊠ in this manual have been carefully factory-selected for each set in order to satisfy regulations regarding X-ray radiation. Should replacement be required, replace only with the value originally used.

<RESISTOR>

REF.NO.	PART NO.	DESCRIPTION				REMARK
JR624	1-216-359-00	METAL OXIDE	6.8	5%	1W	F (KV-29V10C)
R501	1-249-444-11	CARBON	0.56	5%	1/4W	F
R503	1-215-862-11	METAL OXIDE	68	5%	1W	F
R504	1-215-872-11	METAL OXIDE	3.3K	5%	1W	F
R505	1-249-443-11	CARBON	0.47	5%	1/4W	F
R506	1-215-886-11	METAL OXIDE	100	5%	2W	F
R507	1-249-429-11	CARBON	10K	5%	1/4W	
R508	1-249-425-11	CARBON	4.7K	5%	1/4W	
R509	1-249-389-11	CARBON	4.7	5%	1/4W	F
⊠R511 ⚠		CARBON			1/4W	
R512	1-249-389-11	CARBON	4.7	5%	1/4W	F
R513	1-216-385-11	METAL OXIDE	0.47	5%	3W	F
R514	1-249-429-11	CARBON	10K	5%	1/4W	
R515	1-216-363-00	METAL OXIDE	0.33	5%	2W	F
R516	1-249-401-11	CARBON	47	5%	1/4W	
R517	1-215-916-00	METAL OXIDE	680	5%	3W	F
R518	1-215-916-00	METAL OXIDE	680	5%	3W	F
R519	1-249-426-11	CARBON	5.6K	5%	1/4W	F
R520	1-249-423-11	CARBON	3.3K	5%	1/4W	
R521	1-249-411-11	CARBON	330	5%	1/4W	
R522	1-215-886-11	METAL OXIDE	100	5%	2W	F
R523	1-215-862-11	METAL OXIDE	68	5%	1W	F
⊠R524 ⚠		CARBON			1/4W	
R525	1-215-884-11	METAL OXIDE	47	5%	2W	F (KV-27V10/27V15/29V10C/29V10M)
R526	1-247-887-00	CARBON	220K	5%	1/4W	
R527	1-215-861-00	METAL OXIDE	47	5%	1W	F
R528	1-247-750-11	CARBON	680	5%	1/2W	F
R530	1-215-445-00	METAL	10K	1%	1/4W	
R531	1-247-903-00	CARBON	1M	5%	1/4W	
R532	1-215-446-00	METAL	11K	1%	1/4W	
R534	1-249-385-11	CARBON	2.2	5%	1/4W	F
R535	1-216-453-00	METAL OXIDE	270	5%	2W	F
R536	1-249-389-11	CARBON	4.7	5%	1/4W	F (KV-32V15)
R539	1-215-459-00	METAL	39K	1%	1/4W	
R543	1-249-419-11	CARBON	1.5K	5%	1/4W	
R546	1-249-431-11	CARBON	15K	5%	1/4W	
R547	1-247-883-00	CARBON	150K	5%	1/4W	
R550	1-215-875-11	METAL OXIDE	10K	5%	1W	F
R551	1-215-875-11	METAL OXIDE	10K	5%	1W	F
R554	1-216-371-00	METAL OXIDE	1.5	5%	2W	F
R556	1-249-411-11	CARBON	330	5%	1/4W	
R557	1-249-415-11	CARBON	680	5%	1/4W	F
R561	1-249-429-11	CARBON	10K	5%	1/4W	
R562	1-215-437-00	METAL	4.7K	1%	1/4W	
R563	1-249-429-11	CARBON	10K	5%	1/4W	
R564	1-249-433-11	CARBON	22K	5%	1/4W	
R566	1-249-435-11	CARBON	33K	5%	1/4W	
R580	1-249-411-11	CARBON	330	5%	1/4W	
R601 ⚠	1-202-888-91	SOLID	2.2M	20%	1/2W	
R602 ⚠	1-202-888-91	SOLID	2.2M	20%	1/2W	(KV-27V10/27V15/29V10M/32V15)
⚠	1-247-289-11	CARBON	8.2M	5%	1W	(KV-29V10C)

D

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REF.NO.	PART NO.	DESCRIPTION				REMARK
R603	1-249-419-11	CARBON	1.5K	5%	1/4W	
R605	1-247-893-11	CARBON	390K	5%	1/4W	
R606	1-247-893-11	CARBON	390K	5%	1/4W	
R607 ⚠	1-202-933-61	FUSIBLE	0.1	10%	1/2W	F
R608	1-215-860-11	METAL OXIDE	33	5%	1W	F
R609	1-216-369-00	METAL OXIDE	1	5%	2W	F
R610	1-216-369-00	METAL OXIDE	1	5%	2W	F
R611	1-216-492-11	METAL OXIDE	82K	5%	3W	F
R613	1-215-883-11	METAL OXIDE	33	5%	2W	F
R614	1-215-883-11	METAL OXIDE	33	5%	2W	F
R615	1-249-421-11	CARBON	2.2K	5%	1/4W	
R616	1-249-417-11	CARBON	1K	5%	1/4W	
R617	1-249-377-11	CARBON	0.47	5%	1/4W	F
R618	1-249-377-11	CARBON	0.47	5%	1/4W	F
R619	1-249-377-11	CARBON	0.47	5%	1/4W	F
R621	1-249-377-11	CARBON	0.47	5%	1/4W	F
R622	1-249-377-11	CARBON	0.47	5%	1/4W	F
R623	1-249-377-11	CARBON	0.47	5%	1/4W	F
R624	1-249-377-11	CARBON	0.47	5%	1/4W	F
R625	1-249-377-11	CARBON	0.47	5%	1/4W	F
R627	1-249-377-11	CARBON	0.47	5%	1/4W	F
R628	1-249-377-11	CARBON	0.47	5%	1/4W	F
R629	1-249-388-11	CARBON	3.9	5%	1/4W	F
R630	1-215-857-11	METAL OXIDE	10	5%	1W	F
R632	1-249-417-11	CARBON	1K	5%	1/4W	F
R633	1-249-405-11	CARBON	100	5%	1/4W	F
R635	1-249-413-11	CARBON	470	5%	1/4W	F
R636	1-249-383-11	CARBON	1.5	5%	1/4W	F
R637	1-249-421-11	CARBON	2.2K	5%	1/4W	
R638	1-249-423-11	CARBON	3.3K	5%	1/4W	
R639	1-249-423-11	CARBON	3.3K	5%	1/4W	
R640 ⚠	1-202-893-91	SOLID	8.2M	20%	1/2W	
R641	1-249-455-11	CARBON	4.7K	5%	1/4W	F (KV-29V10C)
R642	1-249-451-11	CARBON	2.2K	5%	1/4W	F (KV-29V10C)
R643	1-216-379-11	METAL OXIDE	6.8	5%	2W	F
R644 ⚠	1-212-853-61	FUSIBLE	6.8	5%	1/4W	F
R645	1-249-377-11	CARBON	0.47	5%	1/4W	F
R646	1-249-429-11	CARBON	10K	5%	1/4W	
R647	1-249-433-11	CARBON	22K	5%	1/4W	
R648	1-249-414-11	CARBON	560	5%	1/4W	
R649	1-216-431-11	METAL OXIDE	560	5%	1W	F
R650	1-249-405-11	CARBON	100	5%	1/4W	F
R653	1-249-381-11	CARBON	1	5%	1/4W	
R654	1-216-385-11	METAL OXIDE	0.47	5%	3W	F
R655	1-249-417-11	CARBON	1K	5%	1/4W	F
R656	1-249-381-11	CARBON	1	5%	1/4W	
R657	1-249-417-11	CARBON	1K	5%	1/4W	
R658	1-249-389-11	CARBON	4.7	5%	1/4W	F
R659	1-247-883-00	CARBON	150K	5%	1/4W	
R660	1-249-433-11	CARBON	22K	5%	1/4W	
R661	1-249-406-11	CARBON	120	5%	1/4W	
R663	1-247-737-11	CARBON	68	5%	1/2W	F
R683	1-205-998-11	WIREWOUND	1	5%	1/4W	F (KV-29V10C)
R684	1-205-998-11	WIREWOUND	1	5%	1/4W	F (KV-29V10C)
R687	1-216-359-00	METAL OXIDE	6.8	5%	1W	F (KV-27V10/27V15/29V10M/32V15)
R688	1-215-861-00	METAL OXIDE	47	5%	1W	(KV-27V15/32V15)
R690	1-249-423-11	CARBON	3.3K	5%	1/4W	
R691	1-249-423-11	CARBON	3.3K	5%	1/4W	
R692	1-216-341-11	METAL OXIDE	0.22	5%	1W	F
R693	1-216-389-11	METAL OXIDE	1	5%	3W	F
R699	1-216-492-11	METAL OXIDE	82K	5%	3W	F
R2209	1-249-427-11	CARBON	6.8K	5%	1/4W	
R2210	1-249-435-11	CARBON	33K	5%	1/4W	
R2211	1-249-427-11	CARBON	6.8K	5%	1/4W	
R2212	1-249-435-11	CARBON	33K	5%	1/4W	
R2215	1-249-425-11	CARBON	4.7K	5%	1/4W	
R2216	1-249-437-11	CARBON	47K	5%	1/4W	
R2217	1-249-435-11	CARBON	33K	5%	1/4W	
R2218	1-249-441-11	CARBON	100K	5%	1/4W	
R2219	1-249-413-11	CARBON	470	5%	1/4W	
R2220	1-249-430-11	CARBON	12K	5%	1/4W	
R2221	1-249-430-11	CARBON	12K	5%	1/4W	
R2222	1-249-398-11	CARBON	27	5%	1/4W	
R2223	1-249-418-11	CARBON	1.2K	5%	1/4W	
R2224	1-249-418-11	CARBON	1.2K	5%	1/4W	
R2225	1-249-398-11	CARBON	27	5%	1/4W	
R2226	1-249-385-11	CARBON	2.2	5%	1/4W	F
R2227	1-249-385-11	CARBON	2.2	5%	1/4W	F
R2228	1-249-421-11	CARBON	2.2K	5%	1/4W	
R2229	1-249-421-11	CARBON	2.2K	5%	1/4W	

<RELAY>

RY601 ⚠	1-515-684-31	RELAY
RY602	1-515-684-31	RELAY

<SWITCH>

S501	1-572-707-11	SWITCH, LEVER
S502	1-572-707-11	SWITCH, LEVER

<TRANSFORMER>

T501 ⚠	1-453-416-11	TRANSFORMER ASSY, FLYBACK (NX-2604A3)
T502 ⚠	1-437-195-14	TRANSFORMER, HORIZONTAL DRIVE
T503 ⚠	1-424-545-22	TRANSFORMER, FERRITE (PMT)
T601 ⚠	1-423-593-11	TRANSFORMER, LINE FILTER (LFT)
T602 ⚠	1-424-220-21	TRANSFORMER, LINE FILTER
T603 ⚠	1-423-563-11	TRANSFORMER, CONVERTER DRIVE
T604 ⚠	1-423-615-11	TRANSFORMER, CONVERTER (PIT)
T605 ⚠	1-423-582-21	TRANSFORMER, FERRITE (SBT) (KV-27V10/29V10C/29V10M)
⚠	1-426-669-11	TRANSFORMER, CONVERTER (SBT) (KV-27V15/32V15)

<THERMISTOR>

THP601 ⚠	1-809-827-21	THERMISTOR, POSITIVE (KV-29V10C)
⚠	1-809-539-21	THERMISTOR, POSITIVE (KV-27V10/27V15/29V10M/32V15)

<VARISTOR>

VDR601	1-807-288-11	VARISTOR
VDR602	1-810-053-11	VARISTOR
VDR603	1-810-053-11	VARISTOR

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The components identified by shading and mark ⚠ are critical for safety.
Replace only with part number specified.

Les composants identifies par une trame et une marque ⚠ sont critiques pour la securite.
Ne les remplacer que par une piece portant le numero specifie.

H L Z (KV-27V15/32V15)

REF.NO.	PART NO.	DESCRIPTION	REMARK
	*1-646-717-11	H BOARD *******	
		<CAPACITOR>	
C1001	1-124-248-00	ELECT 22MF 20% 25V	
C1002	1-126-160-11	ELECT 1MF 20% 50V	
C1003	1-126-160-11	ELECT 1MF 20% 50V	
C1004	1-124-584-00	ELECT 100MF 20% 10V	
C1005	1-164-005-11	CERAMIC CHIP 0.47MF 25V	
		<CONNECTOR>	
CN154	*1-564-520-11	PLUG, CONNECTOR 5P	
CN155	1-564-524-11	PLUG, CONNECTOR 9P	
CN156	*1-564-518-11	PLUG, CONNECTOR 3P	
		<DIODE>	
D1004	1-810-039-31	LED UNIT	
		<IC>	
IC1001	8-741-100-62	IC SBX1618-51	
		<JACK>	
J1001	1-695-585-11	JACK BLOCK, PIN (L TYPE) 3P	
		<TRANSISTOR>	
Q1001	8-729-216-22	TRANSISTOR 2SA1162-G	
Q1002	8-729-422-27	TRANSISTOR 2SD601A-Q	
Q1003	8-729-422-27	TRANSISTOR 2SD601A-Q	
		<RESISTOR>	
R1001	1-247-804-11	CARBON 75 5% 1/4W	
R1002	1-249-425-11	CARBON 4.7K 5% 1/4W	
R1003	1-216-113-00	METAL GLAZE 470K 5% 1/10W	
R1004	1-249-425-11	CARBON 4.7K 5% 1/4W	
R1005	1-216-113-00	METAL GLAZE 470K 5% 1/10W	
R1007	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
R1008	1-216-025-00	METAL GLAZE 100 5% 1/10W	
R1009	1-216-065-00	METAL GLAZE 4.7K 5% 1/10W	
R1010	1-216-055-00	METAL GLAZE 1.8K 5% 1/10W	
R1011	1-216-025-00	METAL GLAZE 100 5% 1/10W	
R1012	1-216-049-00	METAL GLAZE 1K 5% 1/10W	
R1014	1-216-047-00	METAL GLAZE 820 5% 1/10W	
R1015	1-216-033-00	METAL GLAZE 220 5% 1/10W	
R1016	1-216-033-00	METAL GLAZE 220 5% 1/10W	
R1017	1-216-105-00	METAL GLAZE 220K 5% 1/10W	
R1018	1-216-089-91	METAL GLAZE 47K 5% 1/10W	
R1019	1-216-025-00	METAL GLAZE 100 5% 1/10W	
R1021	1-216-045-00	METAL GLAZE 680 5% 1/10W	
		<SWITCH>	
S1001	1-692-431-21	SWITCH, TACTILE	
S1002	1-692-431-21	SWITCH, TACTILE	
S1003	1-692-431-21	SWITCH, TACTILE	
S1004	1-692-431-21	SWITCH, TACTILE	
S1005	1-692-431-21	SWITCH, TACTILE	
S1006	1-692-431-21	SWITCH, TACTILE	
S1007⚠	1-692-431-21	SWITCH, TACTILE	

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REF.NO.	PART NO.	DESCRIPTION	REMARK
	*1-651-245-11	L BOARD *******	
		<CAPACITOR>	
C1902	1-164-004-11	CERAMIC CHIP 0.1MF 10% 25V	
		<CONNECTOR>	
CN1903	*1-564-518-11	PLUG, CONNECTOR 3P	
		<IC>	
IC1903	8-759-189-86	IC IS455J	
		<RESISTOR>	
R1901	1-216-133-00	METAL GLAZE 3.3M 5% 1/10W	
R1902	1-216-025-00	METAL GLAZE 100 5% 1/10W	

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REF.NO.	PART NO.	DESCRIPTION	REMARK
	A-1390-411-A	Z BOARD, COMPLETE (KV-27V15/32V15) *****************	
		<CAPACITOR>	
C901	1-124-903-11	ELECT 1MF 20% 50V	
C902	1-124-903-11	ELECT 1MF 20% 50V	
C933	1-126-964-11	ELECT 10MF 20% 50V	
C934	1-126-964-11	ELECT 10MF 20% 50V	
		<CONNECTOR>	
CN901	*1-564-520-11	PLUG, CONNECTOR 5P	
CN905	1-564-517-11	PLUG, CONNECTOR 2P	
		<DIODE>	
D901	8-719-121-24	DIODE RD9.1ESL	
D902	8-719-404-46	DIODE MA110	
D903	8-719-404-46	DIODE MA110	
D904	8-719-109-93	DIODE RD6.2ESB2	
D905	8-719-109-66	DIODE RD3.3ESB2	
D906	8-719-121-24	DIODE RD9.1ESL	
D907	8-719-404-46	DIODE MA110	
D908	8-719-404-46	DIODE MA110	
D909	8-719-404-46	DIODE MA110	
D910	8-719-404-46	DIODE MA110	
D911	8-719-404-46	DIODE MA110	
D912	8-719-404-46	DIODE MA110	
D920	8-719-404-46	DIODE MA110	
		<JACK>	
J901	1-764-873-11	JACK	
J902	1-764-874-11	JACK	
		<TRANSISTOR>	
Q901	8-729-422-27	TRANSISTOR 2SD601A-Q	

Z (KV-27V15/32V15) UA

REF.NO.	PART NO.	DESCRIPTION				REMARK
Q902	8-729-216-22	TRANSISTOR 2SA1162-G				
Q903	8-729-216-22	TRANSISTOR 2SA1162-G				
Q904	8-729-422-27	TRANSISTOR 2SD601A-Q				
Q905	8-729-422-27	TRANSISTOR 2SD601A-Q				
Q906	8-729-422-27	TRANSISTOR 2SD601A-Q				
Q907	8-729-216-22	TRANSISTOR 2SA1162-G				
Q908	8-729-216-22	TRANSISTOR 2SA1162-G				
Q909	8-729-216-22	TRANSISTOR 2SA1162-G				
Q910	8-729-422-27	TRANSISTOR 2SD601A-Q				
Q911	8-729-140-93	TRANSISTOR 2SB733-34				
Q912	8-729-216-22	TRANSISTOR 2SA1162-G				

<RESISTOR>

REF.NO.	PART NO.	DESCRIPTION				REMARK
JR901	1-216-295-00	METAL GLAZE	0	5%	1/10W	
JR902	1-216-295-00	METAL GLAZE	0	5%	1/10W	
JR903	1-216-295-00	METAL GLAZE	0	5%	1/10W	
JR907	1-216-295-00	METAL GLAZE	0	5%	1/10W	
R901	1-249-405-11	CARBON	100	5%	1/4W	F
R902	1-216-033-00	METAL GLAZE	220	5%	1/10W	
R903	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R904	1-216-105-00	METAL GLAZE	220K	5%	1/10W	
R905	1-216-105-00	METAL GLAZE	220K	5%	1/10W	
R906	1-216-089-91	METAL GLAZE	47K	5%	1/10W	
R907	1-216-089-91	METAL GLAZE	47K	5%	1/10W	
R908	1-216-005-00	METAL GLAZE	15	5%	1/10W	
R909	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R910	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R911	1-216-105-00	METAL GLAZE	220K	5%	1/10W	
R912	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R913	1-216-101-00	METAL GLAZE	150K	5%	1/10W	
R914	1-216-089-91	METAL GLAZE	47K	5%	1/10W	
R915	1-216-089-91	METAL GLAZE	47K	5%	1/10W	
R916	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R917	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R918	1-216-105-00	METAL GLAZE	220K	5%	1/10W	
R919	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R921	1-216-089-91	METAL GLAZE	47K	5%	1/10W	
R922	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R923	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R924	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R925	1-216-041-00	METAL GLAZE	470	5%	1/10W	
R926	1-216-025-00	METAL GLAZE	100	5%	1/10W	
R927	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R928	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R929	1-249-405-11	CARBON	100	5%	1/4W	F
R935	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R936	1-216-089-91	METAL GLAZE	47K	5%	1/10W	

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*A-1394-527-A UA BOARD, COMPLETE(KV-27V15)
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*A-1394-529-A UA BOARD, COMPLETE(KV-32V15)
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*A-1394-552-A UA BOARD, COMPLETE
****
(KV-27V10/29V10C/29V10M)

<CAPACITOR>

REF.NO.	PART NO.	DESCRIPTION				REMARK
C401	1-163-031-11	CERAMIC CHIP	0.01MF		50V	
C402	1-124-916-11	ELECT	22MF	20%	25V	
C405	1-124-916-11	ELECT	22MF	20%	25V	
C406	1-124-903-11	ELECT	1MF	20%	50V	
C407	1-124-903-11	ELECT	1MF	20%	50V	
C408	1-124-916-11	ELECT	22MF	20%	25V	
C409	1-124-903-11	ELECT	1MF	20%	50V	
C410	1-124-903-11	ELECT	1MF	20%	50V	
C411	1-104-665-11	ELECT	100MF	20%	50V	(KV-27V10/29V10C/29V10M)
C412	1-124-916-11	ELECT	22MF	20%	25V	
C413	1-126-964-11	ELECT	10MF	20%	50V	
C414	1-124-499-11	ELECT	1MF	20%	50V	
C415	1-124-499-11	ELECT	1MF	20%	50V	
C416	1-126-964-11	ELECT	10MF	20%	50V	
C417	1-124-902-00	ELECT	0.47MF	20%	50V	
C418	1-124-902-00	ELECT	0.47MF	20%	50V	
C419	1-124-126-00	ELECT	47MF	20%	16V	
C420	1-163-031-11	CERAMIC CHIP	0.01MF		50V	
C421	1-124-902-00	ELECT	0.47MF	20%	50V	(KV-27V10/29V10C/29V10M)
	1-124-916-11	ELECT	22MF	20%	25V	(KV-27V15/32V15)
C430	1-124-499-11	ELECT	1MF	20%	50V	(KV-32V15)
C431	1-124-499-11	ELECT	1MF	20%	50V	(KV-32V15)
C432	1-124-916-11	ELECT	22MF	20%	25V	(KV-32V15)
C433	1-104-663-11	ELECT	33MF	20%	25V	(KV-27V15/32V15)
C434	1-163-117-00	CERAMIC CHIP	100PF	5%	50V	(KV-27V15/32V15)
C441	1-124-126-00	ELECT	47MF	20%	16V	
C442	1-163-117-00	CERAMIC CHIP	100PF	5%	50V	(KV-27V15/32V15)
C462	1-126-933-11	ELECT	100MF	20%	16V	(KV-27V15/32V15)

<FILTER>

REF.NO.	PART NO.	DESCRIPTION	REMARK
CM401	1-467-554-11	FILTER BLOCK, COMB	

<CONNECTOR>

REF.NO.	PART NO.	DESCRIPTION	REMARK
CN141	*1-564-520-11	PLUG, CONNECTOR 5P	
CN142	1-564-517-11	PLUG, CONNECTOR 2P	(KV-27V15/32V15)
CN143	1-750-395-11	SOCKET, CONNECTOR 32P	
CN144	*1-564-521-11	PLUG, CONNECTOR 6P	(KV-32V15)
CN146	1-573-300-21	CONNECTOR, BOARD TO BOARD 18P	(KV-27V15/32V15)
CN147	1-750-395-11	SOCKET, CONNECTOR 32P	
CN148	1-564-517-11	PLUG, CONNECTOR 2P	
CN149	*1-564-519-11	PLUG, CONNECTOR 4P	(KV-32V15)

<DIODE>

REF.NO.	PART NO.	DESCRIPTION	REMARK
D401	8-719-110-17	DIODE RD10ESB2	
D402	8-719-110-17	DIODE RD10ESB2	
D403	8-719-110-17	DIODE RD10ESB2	
D404	8-719-110-17	DIODE RD10ESB2	
D405	8-719-110-17	DIODE RD10ESB2	
D408	8-719-110-17	DIODE RD10ESB2	
D409	8-719-110-17	DIODE RD10ESB2	
D410	8-719-110-17	DIODE RD10ESB2	
D411	8-719-110-17	DIODE RD10ESB2	
D429	8-719-110-17	DIODE RD10ESB2	
D430	8-719-110-17	DIODE RD10ESB2	
D431	8-719-110-17	DIODE RD10ESB2	

REF.NO.	PART NO.	DESCRIPTION	REMARK
D436	8-719-110-17	DIODE RD10ESB2 (KV-27V15/32V15)	
D437	8-719-110-17	DIODE RD10ESB2 (KV-27V15/32V15)	

<IC>

REF.NO.	PART NO.	DESCRIPTION	REMARK
IC401	8-759-637-10	IC M52470AP (KV-27V10/29V10C/29V10M)	
IC402	8-752-067-28	IC CXA1545AS (KV-27V15/32V15)	
IC403	8-759-088-00	IC MM1114XFF (KV-27V10/29V10C/29V10M)	
IC404	8-759-164-18	IC MM1118XFF (KV-27V10/20V10C/29V10M)	

<JACK>

REF.NO.	PART NO.	DESCRIPTION	REMARK
J401	1-750-515-11	TERMINAL BLOCK, S 3P	
J402	1-750-517-11	JACK BLOCK, PIN 3P	
J404	1-750-516-11	JACK BLOCK, PIN 2P	

<COIL>

REF.NO.	PART NO.	DESCRIPTION	REMARK
L401	1-410-473-11	INDUCTOR 18UH	(KV-27V15/32V15)
L403	1-410-476-11	INDUCTOR 33UH	(KV-27V15/32V15)
L404	1-410-669-31	INDUCTOR 33UH	(KV-27V15/32V15)

<TRANSISTOR>

REF.NO.	PART NO.	DESCRIPTION	REMARK
Q401	8-729-422-27	TRANSISTOR 2SD601A-Q	
Q405	8-729-216-22	TRANSISTOR 2SA1162-G	
Q406	8-729-216-22	TRANSISTOR 2SA1162-G	
Q410	8-729-422-27	TRANSISTOR 2SD601A-Q	(KV-32V15)
Q415	8-729-422-27	TRANSISTOR 2SD601A-Q	(KV-32V15)
Q416	8-729-216-22	TRANSISTOR 2SA1162-G	(KV-32V15)
Q417	8-729-216-22	TRANSISTOR 2SA1162-G	(KV-32V15)
Q418	8-729-216-22	TRANSISTOR 2SA1162-G	(KV-32V15)

<RESISTOR>

REF.NO.	PART NO.	DESCRIPTION	REMARK
JR402	1-216-295-00	METAL GLAZE 0 5% 1/10W	
JR408	1-216-295-00	METAL GLAZE 0 5% 1/10W	
JR409	1-216-295-00	METAL GLAZE 0 5% 1/10W	(KV-27V10/29V10C/29V10M)
JR410	1-216-295-00	METAL GLAZE 0 5% 1/10W	
JR411	1-216-295-00	METAL GLAZE 0 5% 1/10W	
JR412	1-216-295-00	METAL GLAZE 0 5% 1/10W	
JR415	1-216-295-00	METAL GLAZE 0 5% 1/10W	
JR416	1-216-295-00	METAL GLAZE 0 5% 1/10W	
JR418	1-216-295-00	METAL GLAZE 0 5% 1/10W	
JR419	1-216-295-00	METAL GLAZE 0 5% 1/10W	
JR422	1-216-295-00	METAL GLAZE 0 5% 1/10W	
JR423	1-216-295-00	METAL GLAZE 0 5% 1/10W	(KV-27V10/29V10C/29V10M)
JR424	1-216-295-00	METAL GLAZE 0 5% 1/10W	(KV-27V10/29V10C/29V10M)
JR428	1-216-295-00	METAL GLAZE 0 5% 1/10W	
JR429	1-216-295-00	METAL GLAZE 0 5% 1/10W	
JR430	1-216-295-00	METAL GLAZE 0 5% 1/10W	
JR431	1-216-295-00	METAL GLAZE 0 5% 1/10W	
JR434	1-216-295-00	METAL GLAZE 0 5% 1/10W	
JR435	1-216-295-00	METAL GLAZE 0 5% 1/10W	(KV-27V10/29V10C/29V10M)
JR498	1-216-295-00	METAL GLAZE 0 5% 1/10W	
JR499	1-216-295-00	METAL GLAZE 0 5% 1/10W	
JR901	1-216-295-00	METAL GLAZE 0 5% 1/10W	
JW454	1-249-429-11	CARBON 10K 5% 1/4W	(KV-27V10/29V10C/29V10M)
JW456	1-249-429-11	CARBON 10K 5% 1/4W	(KV-27V10/29V10C/29V10M)
R401	1-247-804-11	CARBON 75 5% 1/4W	
R402	1-216-113-00	METAL GLAZE 470K 5% 1/10W	
R403	1-216-113-00	METAL GLAZE 470K 5% 1/10W	
R404	1-247-804-11	CARBON 75 5% 1/4W	
R405	1-216-113-00	METAL GLAZE 470K 5% 1/10W	
R406	1-216-113-00	METAL GLAZE 470K 5% 1/10W	
R407	1-247-804-11	CARBON 75 5% 1/4W	
R408	1-216-113-00	METAL GLAZE 470K 5% 1/10W	
R409	1-216-113-00	METAL GLAZE 470K 5% 1/10W	
R410	1-249-425-11	CARBON 4.7K 5% 1/4W	
R411	1-249-425-11	CARBON 4.7K 5% 1/4W	
R412	1-249-425-11	CARBON 4.7K 5% 1/4W	
R413	1-249-425-11	CARBON 4.7K 5% 1/4W	
R414	1-247-804-11	CARBON 75 5% 1/4W	
R415	1-249-425-11	CARBON 4.7K 5% 1/4W	
R416	1-216-647-11	METAL CHIP 680 0.50% 1/10W	
R417	1-216-645-11	METAL CHIP 560 0.50% 1/10W	
R418	1-216-025-00	METAL GLAZE 100 5% 1/10W	(KV-27V10/29V10C/29V10M)
R421	1-216-065-00	METAL GLAZE 4.7K 5% 1/10W	
R425	1-216-065-00	METAL GLAZE 4.7K 5% 1/10W	
R431	1-216-045-00	METAL GLAZE 680 5% 1/10W	(KV-27V10/29V10C/29V10M)
	1-216-049-00	METAL GLAZE 1K 5% 1/10W	(KV-27V15/32V15)
R432	1-216-045-00	METAL GLAZE 680 5% 1/10W	(KV-27V10/29V10C/29V10M)
	1-216-295-00	METAL GLAZE 0 5% 1/10W	(KV-27V15/32V15)
R434	1-216-045-00	METAL GLAZE 680 5% 1/10W	(KV-27V10/29V10C/29V10M)
	1-216-049-00	METAL GLAZE 1K 5% 1/10W	(KV-27V15/32V15)
R435	1-216-045-00	METAL GLAZE 680 5% 1/10W	(KV-27V10/29V10C/29V10M)
	1-216-295-00	METAL GLAZE 0 5% 1/10W	(KV-27V15/32V15)
R439	1-216-049-00	METAL GLAZE 1K 5% 1/10W	
R440	1-216-025-00	METAL GLAZE 100 5% 1/10W	(KV-27V10/29V10C/29V10M)
R441	1-216-049-00	METAL GLAZE 1K 5% 1/10W	
R442	1-216-025-00	METAL GLAZE 100 5% 1/10W	(KV-27V10/29V10C/29V10M)
R443	1-216-025-00	METAL GLAZE 100 5% 1/10W	(KV-27V10/29V10C/29V10M)
R444	1-216-095-00	METAL GLAZE 82K 5% 1/10W	
R445	1-216-073-00	METAL GLAZE 10K 5% 1/10W	(KV-27V15/32V15)
R446	1-216-073-00	METAL GLAZE 10K 5% 1/10W	(KV-27V15/32V15)
R450	1-216-025-00	METAL GLAZE 100 5% 1/10W	(KV-27V10/29V10C/29V10M)
	1-216-643-11	METAL CHIP 470 0.50% 1/10W	(KV-27V15/32V15)
R451	1-216-065-00	METAL GLAZE 4.7K 5% 1/10W	(KV-27V15/32V15)
R452	1-216-025-00	METAL GLAZE 100 5% 1/10W	(KV-32V15)
R453	1-216-645-11	METAL CHIP 560 0.50% 1/10W	(KV-32V15)
	1-216-653-11	METAL CHIP 1.2K 0.50% 1/10W	(KV-27V10/29V10C/29V10M)
R454	1-216-025-00	METAL GLAZE 100 5% 1/10W	(KV-27V10/29V10C/29V10M)

Les composants identifies par une trame et une marque ⚠ sont critiques pour la securite. Ne les remplacer que par une piece portant le numero specifie.

The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

REF.NO.	PART NO.	DESCRIPTION	REMARK
	1-216-295-00	METAL GLAZE 0 5% 1/10W	(KV-27V15/32V15)
R456	1-216-041-00	METAL GLAZE 470 5% 1/10W	(KV-27V15/32V15)
R457	1-216-033-00	METAL GLAZE 220 5% 1/10W	(KV-27V15/32V15)
R458	1-216-033-00	METAL GLAZE 220 5% 1/10W	(KV-27V15/32V15)
R459	1-216-081-00	METAL GLAZE 22K 5% 1/10W	(KV-32V15)
R460	1-216-037-00	METAL GLAZE 330 5% 1/10W	(KV-32V15)
R461	1-216-065-00	METAL GLAZE 4.7K 5% 1/10W	(KV-32V15)
R462	1-216-065-00	METAL GLAZE 4.7K 5% 1/10W	(KV-32V15)
R463	1-216-045-00	METAL GLAZE 680 5% 1/10W	(KV-32V15)
R464	1-216-045-00	METAL GLAZE 680 5% 1/10W	(KV-32V15)
R476	1-216-081-00	METAL GLAZE 22K 5% 1/10W	(KV-32V15)
R478	1-216-041-00	METAL GLAZE 470 5% 1/10W	(KV-27V15/32V15)
R479	1-216-081-00	METAL GLAZE 22K 5% 1/10W	(KV-32V15)
R480	1-216-081-00	METAL GLAZE 22K 5% 1/10W	(KV-32V15)
R481	1-216-081-00	METAL GLAZE 22K 5% 1/10W	(KV-32V15)
R482	1-249-417-11	CARBON 1K 5% 1/4W	
R483	1-249-417-11	CARBON 1K 5% 1/4W	
R488	1-216-081-00	METAL GLAZE 22K 5% 1/10W	(KV-32V15)
R489	1-216-081-00	METAL GLAZE 22K 5% 1/10W	(KV-32V15)
R490	1-216-295-00	METAL GLAZE 0 5% 1/10W	
R491	1-216-295-00	METAL GLAZE 0 5% 1/10W	
R492	1-216-295-00	METAL GLAZE 0 5% 1/10W	
R1438	1-216-081-00	METAL GLAZE 22K 5% 1/10W	(KV-27V15/32V15)

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MISCELLANEOUS
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	⚠1-402-952-12	COIL, DEMAGNETIZATION	(KV-32V15)
	⚠1-406-726-22	COIL, DEMAGNETIZATION	(KV-27V10/27V15/29V10M)
	⚠1-406-726-41	COIL, DEMAGNETIZATION	(KV-29V10C)
	1-417-178-11	SELECTOR, ANTENNA (AS-2)	(KV-32V15)
	1-504-524-11	SPEAKER (8CM)	
	1-569-007-11	ADAPTER, CONVERSION 2P	(KV-29V10C)
	1-573-657-11	PLAUG, F-PIN	(KV-27V10/27V15/29V10C/29V10M)
	⚠1-751-056-11	CORD, POWER (WITH CONNECTOR) 6A/250V	(KV-29V10C)
	⚠1-751-059-11	CORD, POWER (WITH CONNECTOR) 10A/125V	(KV-27V10/27V15/29V10M/32V15)
	*1-751-135-11	CABLE, PIN	(KV-32V15)
	*1-751-136-11	CABLE, PIN	(KV-32V15)
	⚠8-451-275-42	DEFLECTION YOKE Y28PFA(VTM)	(KV-27V10/27V15/29V10C/29V10M)
	⚠8-451-315-41	DEFLECTION YOKE Y34FXA(VTM)	(KV-32V15)

REF.NO.	PART NO.	DESCRIPTION	REMARK
V901	⚠8-733-723-05	PICTURE TUBE (A80JYV50X)	(KV-32V15)
	⚠8-733-848-05	PICTURE TUBE (A68KZJ50X)	(KV-27V10/27V15/29V10C/29V10M)

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ACCESSORIES AND PACKING MATERIALS
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	1-467-626-11	MOUSE, INTERIJENT CABLE (RM-CM101)	(KV-27V15/32V15)
	1-569-007-11	ADAPTER, COMVERSION 2P	(KV-29V10C)
	3-758-286-21	MANUAL, INSTRUCTION (ENGLISH)	(KV-27V10/29V10M)
	3-758-286-31	MANUAL, INSTRUCTION (FRENCH)	(KV-27V10(CND))
	3-758-286-41	MANUAL, INSTRUCTION (SPANISH)	(KV-29V10M)
	3-758-287-21	MANUAL, INSTRUCTION, CABLE MOUSE	(KV-27V15/32V15)
	3-758-287-31	MANUAL, INSTRUCTION, CABLE MOUSE	(KV-27V15(CND)/32V15(CND))
	3-758-287-41	MANUAL, INSTRUCTION, CABLE MOUSE	(KV-27V15(US)/32V15(US))
	3-758-289-21	MANUAL, INSTRUCTION (ENGLISH)	(KV-27V15/32V15)
	3-758-289-31	MANUAL, INSTRUCTION (FRENCH)	(KV-27V15(CND)/32V15(CND))
	3-758-289-41	MANUAL, INSTRUCTION (SPANISH)	(KV-27V15(US)/32V15(US))
	3-758-336-41	MANUAL, INSTRUCTION	(KV-29V10C)
	3-758-336-51	MANUAL, INSTRUCTION	(KV-29V10C)
	4-043-736-01	FILTER, MOUSE	(KV-27V15/32V15)
	4-043-737-01	HOLDER, FILTER	(KV-27V15/32V15)
	*4-041-255-01	BAG, PROTECTION	(KV-27V10/27V15/29V10C/29V10M)
	*4-041-259-01	BAG, PROTECTION	(KV-32V15)
	*4-043-483-01	INDIVIDUAL CARTON	(KV-27V10/27V15/29V10C/29V10M)
	*4-043-484-01	CUSHION (UPPER) (ASSY)	(KV-27V10/27V15/29V10C/29V10M)
	*4-043-485-01	CUSHION (LOWER) (ASSY)	(KV-27V10/27V15/29V10C/29V10M)
	*4-043-597-01	CUSHION (UPPER) (ASSY)	(KV-32V15)
	*4-043-598-01	CUSHION (LOWER) (ASSY)	(KV-32V15)
	*4-043-599-01	INDIVIDUAL CARTON	(KV-32V15)

REMOTE COMMANDER

	1-467-060-13	REMOTE COMMANDER (RM-Y117)	(KV-27V10/29V10C/29V10M)
	9-903-826-01	COVER, BATTERY (FOR RM-Y117)	(KV-27V10/29V10C/29V10M)
	1-467-621-11	REMOTE COMMANDER (RM-Y121)	(KV-27V15/32V15)
	9-907-089-01	COVER, BATTERY (FOR RM-Y121)	(KV-27V15/32V15)

Sony Corporation
TV Group

9-965-805-01

English
94CR7450-1
Printed in U. S. A.

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